CITY OF HURON, OHIO

2011 SECURITY CAMERA INSTALLATION

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PROJECT SUMMARY

The City of Huron operates multiple facilities throughout the city including City Hall, Police Department, Fire Department, Services Complex, Water Filtration Plant, Boat Basin and Boat Ramp.

The City is soliciting sealed bids for the purpose of outfitting each facility with security cameras which can be monitored in a central area located in the police department dispatch center.

The Project Manager for this Project is Police Chief John Majoy. Chief Majoy can be contacted at (419) 433-5000.

1.0 NOTICE TO BIDDERS

The City of Huron (City) reserves the right to reject any, or any part of any, or all bids, to waive formalities and technicalities, to advertise for new bids or to make the award if, in the judgment of the City, the best interest of the project will be promoted thereby.

It is the intent of the City to award a contract to the lowest and best bidder. The bidder to whom the award is made will be expected to enter into a contract with the City for completion of the work.

1.1. Instructions to Bidders

The Bid is to be bid as a lump sum price for the following facilities: City Hall, Police Department, Boat Basin and Boat Ramp using the Bid Form found in Appendix A of this document. Separate alternate bids will be considered for the Water Plant and Street Garage.

1.2. Information Available to Bidders

Bidders will have access to the facility to become familiar with the project prior to submitting a bid. Bidders are strongly encouraged to visit the site prior to submitting a bid. Failure to visit the Site will not relieve the successful submitter from executing the job as per the specifications. Submission of a bid will be considered acknowledgement that the bidder is familiar with the site, nature of the work, plans, specifications, general conditions and instruction to bidders. Bidders wanting to visit the facility will need to contact **Project Manager John Majoy, Chief of Police** at (419) 433-5000.

1.3. Deviations, Omissions, and Conflicts

It is not the intent of the City to deviate from the scope of work, and while the specifications contained in this bid document are intended to be complete, the submitter shall consider itself to be bound by the scope of work whether or not specific reference is made thereto. The submitter shall notify the Project Manager listed in the Project Summary portion of this bid, in writing of any apparent deviations, omissions, ambiguities, or conflicts noted in this bid which may affect the performance and/or price of this work.

1.4. Errors or Omissions in Bid

The submitter shall be responsible for all errors or omissions in its bid. The submitter may correct any errors and omissions in its proposal by submitting a written request by the bid due date. The same person who signed the proposal must sign in the same manner this written request and it must contain instructions and page numbers for updating the original proposal.

Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind will, at the discretion of the City, be declared unacceptable.

The City reserves the right to be the sole judge of the suitability and fitness of the services bid on, as well as other such things as may determine the suitability of the bid for fitting the needs of the project.

1.5. Right to Withdraw Bid

The submitter may withdraw its bid by submitting a written request by the bid due date. Bids that are withdrawn shall be handled at the submitter's expense, according to the instructions included in the submitter's request to withdraw, provided such instructions are reasonable.

1.6. Effective Period of Bid

The bid, both technical and price, shall remain in effect for a period of sixty (60) days from the bid due date.

1.7. Bid Responsibility

Any and all costs incurred in responding to this bid shall be the responsibility of the submitter. The bid material, including supporting materials, and other information disbursed during the bid process, will become the property of the City. Any material submitted with this bid may be treated as a public document unless informed in writing by the submitter that the submitter

considers such material to contain trade secrets under Ohio law. The City may require additional information in support of such a claim.

To demonstrate qualification for performing the work, bidders may be requested to submit written evidence of previous experience, and license to perform work in the State of Ohio. In submitting a bid, the submitter acknowledges that the City shall not be responsible for delays caused by errors, omissions or ambiguities on the part of the submitter in any submission.

1.8. Bidder's Bond

A bid bond is required for this project.

1.9. Contract

No party has the right to expect that they will be awarded an agreement with the City absent adherence to these legal requirements and review procedures. The City reserves the right to refuse to enter into an agreement with any party unless and until all legal requirements have been adhered to.

The contract document is in Appendix B.

2.0 GENERAL CONDITIONS

2.1. Required Forms

All bids submitted must have the following forms (Appendix C) completed and submitted at the time of the bid opening:

- Non-collusion Affidavit
- No Finding for Recovery Affidavit
- Non Discrimination Affidavit
- Contractor Limitation Certificate
- Certification That Contractor Is Not Debarred, Suspended, Nor Excluded
- Disclosure of Personal Property Taxes

Failure to submit completed forms could result in your bid being rejected.

2.2. Insurance

The insurance requirements are included in Appendix D. The selected submitter shall be required to adhere to all of its terms and conditions.

2.3. Applicable Taxes

The selected submitter shall be responsible for payment of all applicable federal, state, and local taxes that are in any way related to this project and its completion by the selected submitter, including but not limited to employment taxes for its employees or agents, sales taxes, property taxes, unemployment compensation taxes, franchise taxes, and withholding taxes.

2.4. Responsibilities of Parties

The relationship between the parties shall be limited to the performance of services as set forth in this Agreement. Neither party may obligate the other to any expense or liability outside of the Agreement except upon written consent of the other.

A. City of Huron – The City of Huron is the owner of the property. In the context of the project organization, the City is responsible for facility administration, regulatory oversight, health and safety, accounting, purchasing, etc. The City has

direct authority over the contractor. Services to be provided by the City for this project include access to the site and adequate storage area and parking.

B. Contractor – The Contractor is responsible for implementing the demolition activities of the project pursuant to the scope of work in Section 4.0 of this bid document. The contractor reports to the City.

2.5 Safety

The Contractor shall at all times meet safety requirements established for the Occupational Safety and Health Administration as set forth in set forth in 29 CFR 1910 et seq. and safety rules and practices of the City, without exception. The Contractor shall comply with all federal, state and local safety regulations. The Contractor shall require all personnel to wear appropriate protective clothing, hard hats, etc., as required by law.

Failure to comply with either general safety practices or health and safety practices as described above may be grounds for termination. The safety requirements of the work, as described above, apply without regard to time, place, or presence of the City.

2.6. Regulatory Requirements

All work performed will be observed by the City. The contractor shall make all notifications and obtain all necessary permits from governing local, state or federal regulatory agencies. The contractor shall conform to applicable federal, state and local ordinance, regulations, rules and/or procedures. For any work that is subject to review by state or local officials, coordination for inspections shall be the responsibility of the contractor.

The Contractor shall be required to obtain any environmental or general construction permits applying to the work.

2.7. Site Control

The City will not maintain site security during the completion of contracted activities. The City will not be responsible for lost, stolen or damaged materials or equipment. The contractor is responsible for any equipment and material on-site. The contractor will be required to take actions to restrict any unauthorized entry into work areas.

2.8 Warranty

Contractor warrants that all materials and services will be performed as to be free from defect or material workmanship and conform strictly to the specifications associated with the project. Contractor shall be liable for additional costs incurred, including time spent by the City, if additional work is required as a result of contractors failure to complete tasks as outlined in the scope of work.

2.9 Liens and Claims

Contractor shall indemnify and save harmless the City from all liens, claims, demands, or suits of whatever nature brought by Contractor's laborers, subcontractors, suppliers, or other creditors to enforce a right of any kind made upon or against the work or the real property where the work is performed. As a condition precedent to payment to Contractor, the City may require complete waivers and releases of any and all claims for payment of any person, firm or corporation.

2.10 Indemnification

The Contractor shall indemnify and hold harmless the City, their officials, officers, agents and employees, from and against claims, damages, losses and expenses, including attorney's fees, arising out of or resulting from performance of the work, provided that such a claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of property of any kind including loss of use resulting therefore, but only to the extent caused in whole or in party by any acts or omissions of the contractor, any subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable. It is understood and agreed that this indemnification obligation is enforceable to the full extent permitted by Ohio Revised Code Section 2305.31.

In any and all claims against the City or its officials, officers, agents or employees or combination thereof, by any employee of the contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, contractor hereby expressly waives the immunity provided to contractor by Article II, Section 35 of the Ohio Constitution and Ohio Revised Code, Section 4123.74 and 4123.741, so that this indemnification obligation my be enforced by the City against Contractor in those instances.

The indemnification obligation shall not be limited in any way by the insurance requirements but shall be in addition to those requirements.

Contractor shall be responsible for its negligent acts and omissions and those of any and all persons for who it is legally responsible.

The City shall be responsible for its negligent acts and omissions and those of any and all persons for who it is legally responsible. The City agrees to hold Contractor harmless and to indemnify and defend Contractor against any and all loss, expense, and liabilities of every kind including court costs and reasonable attorney fees arising out of or related to the negligent actions or inactions, errors, or omissions of the City, or City employees, and all persons for who the City is or may be legally responsible.

The City and the Contractor agree that where negligent acts or omissions of the contractor and the City are jointly responsible for any liability under the foregoing indemnities, each will indemnify the other on a comparative responsibility basis under comparative negligence principles.

In no event shall either the Contractor or the City be liable for consequential damages, including, without limitation, loss or use or loss of profits, incurred by one another or their subsidiaries or successors, regardless of whether such damages are caused by a breach of contract, willful misconduct, negligent act or omissions, or other wrongful act, whether professional or non professional, of either of them or their employees.

2.11 Assignment

Contractor shall not delegate any duties and services, nor assign any rights, or claims under this Agreement or for breach thereof, without prior consent of the City. Contractor shall not subcontract any work performed under this Agreement without prior written consent of the City.

This agreement contains the entire agreement between the parties hereto and they shall not be bound by any terms, warranties or representatives, oral or written, not herein contained. Purchaser has not relied upon representations, warranties or statements about the property made by Seller and/or his agents or representatives. Each counterpart of this agreement will be deemed an original of the contract for all purposes.

2.12 Changes

The City shall have the right to make change orders during a project without notice to any sureties or assignees. Contractor shall immediately notify the City of any increases or decreases in costs caused by such change orders and an equitable adjustment in prices or other terms hereof shall be agreed upon in a written amendment to this Agreement prior to proceeding with performance of the work affected by the change order.

2.13 Governing Law

This Agreement shall be construed in accordance with and governed by laws of the State of Ohio, irrespective of the fact that a party hereto may not be a resident of or maintain a place of business in that State.

The court and authorities of the State of Ohio or the Federal District Court having venue for Erie County, Ohio shall have jurisdiction over all controversies that may arise with respect to this agreement, the parties hereby waiving any other venue to which they might be entitled by virtue of the domicile or otherwise. Should either party initiate or bring suit or action before any other court, it is agreed that upon application any such suit or action shall be dismissed, without prejudice, and may be filed in accordance with this provision. The party bringing the suit or

action before a court not agreed to herein shall pay to the other party all the costs of seeking dismissal including reasonable attorney's fees.

2.14 Force Majeure

Neither party to this Agreement will be liable to the other party for delays in performing the services, nor for the direct or indirect cost resulting from such delays, that may result from labor strikes, riots, war, acts of governmental authorities, extraordinary weather conditions or other natural catastrophe, or any other cause beyond the reasonable control or contemplation of either party.

2.15 Severability

If any provision of this Agreement is found to be invalid or unenforceable, such provision shall be stricken from the Agreement, and all remaining provisions shall remain in full force and effect as if stricken provision had never been part of this Agreement.

The parties have read the foregoing, understand completely the terms and conditions, and willingly enter into this Agreement.

3.0 SCHEDULE OF WORK

After selection, the Contractor will receive a written Notice of Award (Appendix E). Upon receipt of the written notification, the Contractor shall have seven (7) days to sign a contract with the City. After the contract is executed the Contractor will receive a written Notice to Proceed (Appendix F) which will fix the start and completion date for the contracted work. If the Contractor does not meet the contract deadline, a penalty as specified in Section III will be assessed.

Upon executing the signed contract with the City, the Contractor shall present for approval a Certificate of Insurance as required in Appendix D, and an unaltered copy of the official certificate of the Ohio Industrial Commission indicating the contractor has paid the premiums required under the Ohio Workmen's Compensation Act.

4.0 SCOPE OF WORK

See Appendix F

APPENDIX A

Bid Form

BID FORM

To: City of Huron, Ohio
417 Main Street
Huron, Ohio 44839

Project: 2011 Security Camera Installation

Date: _____

Submitted by: (full name) _____

(full address) _____

_____

Each Contractor is instructed to complete the bid table by indicating the cost or value of labor and materials for each of the following categories and shall provide a total amount of the bid in accordance with the Bid Document and General Conditions.

TASK	LABOR COST	MATERIAL COST
Installation of Specified System at City Hall, Police Department, Boat Basin, Boat Ramp		
Alternate #1: Installation of Specified System at Water Plant and Services Center		
Service Agreement to include annual inspection services		

TOTAL AMOUNT OF BID	

Attach additional proposal if necessary

APPENDIX B

Contract

AGREEMENT FOR INSTALLATION SERVICES

This AGREEMENT is made as of _____ 201_, by and between the **City of Huron** (CITY), an Ohio Charter Municipality and _____ (CONTRACTOR) for the provision of services necessary to complete the project known as the 2011 Security Camera Installation.

In consideration of the mutual covenants contained herein, and for good and valuable consideration, the sufficiency of which is hereby acknowledged, Contractor and City hereby agree as follows:

I. **CONTRACT SERVICES.** Contractor shall perform for City those services as set forth in the Bid Document responded to by the Contractor on June 14, 2011.

II. **CONTRACT PRICE.** The final contract price shall be evidenced by Contractor's total bid amount. All changes to the total contract amount shall be in compliance with General Conditions Section 2.12 of the Bid Document.

III. **TERM**. The Notice of Proceed issued to Contractor by the City shall designate a definite start and end date to the project. Pursuant to the Bid Document, the Project shall be completed within thirty (30) days. A failure by Contractor to complete the assigned work in the time frame allotted in the Notice to Proceed shall amount to the imposition of a penalty of ten percent (10%) of the original contract price payable to City by Contractor.

IV. **INSURANCE** Prior to commencement of work by Contractor, Contractor shall provide to City documentation demonstrating insurance coverage as outlined in Appendix D of the Bid Document.

V. **INDEMNIFICATION** Contractor shall indemnify City in the manner set forth in the General Conditions Section 2.10 of the Bid Document as if fully rewritten and incorporated by reference herein.

VI. **BILLING** All goods or services must be billed to the City of Huron and at prices not exceeding those stated within this Agreement. Prepayment or progress payments are not permitted unless prior permission is obtained from City.

VII. **ADDITIONAL TERMS AND CONDITIONS** This Agreement is premised on acceptance of the terms and conditions as set forth in the Bid Document as if fully rewritten and incorporated by reference herein.

VIII. **NOTICE** All notice shall be deemed duly served in personally delivered or if mailed by Registered of Certified Mail to the respective addresses of City or Contractor or their designated ages as herein set forth.

CITY:	**CONTRACTOR:**
CITY OF HURON	_____
417 Main Street	_____
Huron, Ohio 44839	_____
(419) 433-5000	_____
Attention: Andrew White	**Attention:** _____

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives.

CITY OF HURON

By _____

City Manager

CONTRACTOR

By _____

APPROVED AS TO FORM:

_____
Laura E. Alkire
Law Director, City of Huron

APPENDIX C

Required Forms

NON-COLLUSION AFFIDAVIT

(THIS AFFIDAVIT MUST BE EXECUTED FOR THE BID TO BE CONSIDERED)

STATE OF OHIO)
COUNTY OF _____) SS

_____, being duly sworn, deposes and says that

he is _____ of _____,
(sole owner, president, secretary, etc.)

the party making the foregoing proposal or bid; that such bid is genuine and no collusive or sham; that said Bidder is not financially interested in or otherwise affiliated in a business way with any other bidder or the same contract; that said Bidder has not colluded, conspired, connived, or agree, directly or indirectly, with any Bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, communication or conference, with any person, to fix the bid price of affiant or any other bidder, or fix any overhead profit or cost element of said bid price, or that of any other bidder, or to secure any advantage against the City, or any person or persons interested in the proposed contract; and that all statements contained in said proposal or bid are true; and further, that such Bidder has not, directly or indirectly, submitted said bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

_____
Affiant

Sworn to and subscribed before me this _____day of _____, 2011

_____
Notary Public in and for

_____County, Ohio

(SEAL)

_____
My commission expires

AFFIDAVIT OF CONTRACTOR OR SUPPLIER OF NO UNRESOLVED FINDING FOR RECOVERY BY OHIO STATE AUDITOR
O.R.C. 9.24

STATE OF OHIO :

ss:

COUNTY OF ____ERIE_____

TO: City Council of Huron Ohio

The undersigned, being first duly sworn, having been awarded a contract by you FOR THE PURPOSE OF _____, CITY OF HURON, ERIE COUNTY, OHIO, hereby states that we,

_____
(Name of Vendor/Contractor)

do not have any unresolved findings for recovery issued by the Auditor of the State of Ohio as defined in Ohio Revised Code Section 9.24. In consideration of the award of the above contract, the above statement is incorporated in said contract as a covenant of the undersigned.

_____
Signature/Title

Sworn to before me and subscribed in my presence this ___ day of _____, 20_____.

_____
Notary Public

NON DISCRIMINATION AFFIDAVIT

(O.R.C.153.59)

That _____ in the performance of the attached

Public contract agree to abide by the provision of Revised Code §153.59 listed below:

(A) That, in the hiring or employees for the performance of work under the contract or any subcontract, no Bidder, sub-Bidder, or any person acting on a Bidder's or sub-Bidder's behalf, by reason of race, creed, sex, disability as defined in R.C. §4112.01 shall discriminate against any citizen of the State in the employment of labor or workers who is qualified an available to perform the work to which the employment relates;

(B) That no Bidder, sub-Bidder, or any person on a Bidder's or sub-bidder's behalf, in any matter, shall discriminate against or intimidate any employee hired for the performance of work under the contract on account of race, creed, sex, disability as defined in section 4112.01 of the Revised Code, or color.

_____ _____

(Name of Agent) Signature

CONTRACT LIMITATION CERTIFICATE

I, _____,
(Name of representative of Bidder)

_____

(Vendor) do hereby

Acknowledge that the maximum amount of monetary obligation of the city of Huron Ohio Under the attached contract or agreement is $ (Contract Amount) UNLESS the City Council of Huron Ohio gives PRIOR APPROVAL for additional expenditures of money under the contract or agreement and the City of Huron Finance Director certifies to the availability of such additional funds, the Council of the City of Huron, Ohio SHALL NOT BE HELD LIABLE by _____ (bidder) for any monetary obligations under this contract or agreement above the maximum amount of $_____ UNLESS expenditures are approved by the City of Huron.

_____
Representative of Vendor

Sworn to before me and subscribed in my presence this ___ day of _____, 20_____.

_____
Notary Public

CERTIFICATION THAT CONTRACTOR IS NOT DEBARRED, SUSPENDED NOR EXCLUDED

(to be filled out by Contractor)

Name of Contractor: _____

Address of Contractor: _____

_____

Is contractor listed as:	Debarred	_____yes	_____no
	Suspended	_____yes	_____no
	Excluded	_____yes	_____no

If any of the categories are checked yes, attach Contractor's explanation and a written statement that the listing is no longer valid, or that the Contractor is able to participate in this City Contract.

Date that City checked the Federal Government's website http://epls.arnet.gov./

(to be filled out by City)

Date _____ Initials _____

DISCLOSURE OF PERSONAL PROPERTY TAXES
(Section 5719.042 Ohio Revised Code)

STATE OF OHIO)
COUNTY OF _____) SS

The undersigned, being first duly cautioned and sworn according to law, states as follows:

1. That he or she is the _____ (title) of _____ _____, (company name), which company made bid for an improvement project or for the purchase of services and supplies for the City of Huron, Ohio, involving the competitive bid process.

2. He or she is familiar with O.R.C. 5719.042, and that he submits to the City Finance Director as the Taxing District Fiscal Officer this statement under oath, that the person with whom the municipal contract is to be made was not charged at the time the bid was submitted with any delinquent personal property taxes on the general tax list of personal property of any county in which the taxing district known as the City of Huron has territory or that such person was charged with delinquent personal property taxes on any such tax list.

(Strike out if not applicable). This statement sets forth in full, the amount of such due and unpaid delinquent taxes and any due and unpaid penalties and interest thereon as specified by O.R.C. 5719.042, a photocopy of which is attached hereto and made a part of this Affidavit.

3. If this statement indicates that the taxpayer was charged with any such taxes, a copy of the statement shall, with the permission of the taxpayer, which is hereby given, be transmitted by the Finance Director of the City of Huron to the county Treasurer within thirty days of the date this statement is submitted.

4. A copy of the statement shall also be incorporated into the contract between the City of Huron and the undersigned, and no payment shall be made with respect to any contract to which O.R.C. 5719.042 applies unless such statement has been so incorporated as a part thereof.

FURTHER AFFIANT SAYETH NAUGHT.

_____
Affiant

Sworn to and subscribed before me this _____day of _____, 2011

_____
Notary Public in and for

(SEAL) _____County, Ohio

My commission expires: _____

APPENDIX D

Insurance Requirements

INSURANCE REQUIREMENTS

The following insurance coverage shall be obtained maintained by Contractor, at Contractor's sole cost and expense, in amounts not less than the following minimum amounts (which minimum amounts may reasonably be increased by the city from time to time), from insurers acceptable to the City:

> Commercial General Liability: This coverage shall be written on an "occurrence" basis with minimum limits of $1,000,000.00 for Bodily Injury and $50,000.00 for Property Damage. The Commercial General Liability policy shall be endorsed to include the City, the City's agents as additional insured with respect to Contractor's operations related to this contract.

Contractor shall maintain the aforementioned minimum Insurance Coverage Policy and Limits at all times throughout the performance of the project using an insurance carrier with a Best Rating.

All required insurance policies shall provide that no less than thirty (30) days' prior written notice shall be given City and City's designated Agent in the event of any cancellation or any material change or reduction in coverage.

Satisfactory Certificates of Insurance evidencing the above coverage, and meeting the additional requirements hereof, are to be furnished to City and/or City's designated agent in accordance with the language specified in the Bid Document and in the Contract.

APPENDIX E

Notice of Award

NOTICE OF AWARD

To: _____ Date: _____

_____

_____

_____

_____

Project Description: _____

_____

The City of Huron has considered the Bid submitted by you on _____. 20___ (bid Date) for the above described work in response to its Advertisement for Bids and Instructions to Bidders.

You are hereby notified that you Bid has been accepted for items in the amount of $_____.

You are required to execute the Agreement and furnish the required Performance Bond and Certificates of Insurance within seven (7) calendar days from the date of this notice to you. If you fail to execute said Agreement and to furnish said bonds within seven days, the City of Huron will be entitled to consider all your rights arising out of this acceptance on your bid as abandoned. The City of Huron will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award.

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged.

By _____
Contractor

This the ____day of _____20___.

By _____
Name _____
Title _____

APPENDIX F

Notice to Proceed

NOTICE TO PROCEED

To: _____ Date: _____

_____

_____

_____

_____

Project Description: _____

_____

You are hereby notified to commence work in accordance with the Agreement dated _____, 20_____, on or before _____, 20 ____, and you are to complete the work within _____ calendar days after commencing work. The date all work is to be completed and ready for final payment is _____, 20____.

You are required to return an acknowledged copy of this Notice to Proceed.

FOR CITY OF HURON

By _____

Name _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged.

By _____
Contractor

This the ____day of _____20___.

By _____
Name _____
Title _____

APPENDIX F

Product Specifications

APPENDIX F

Specifications for a IP Camera System for the City Of Huron

General

These specifications are intended to describe a new CCTV System for the City Of Huron to meet the specific needs of the City. The technical details included herein define the minimum acceptable performance levels necessary to assure dependability, longevity, and the functional characteristics required. These specifications may not list all equipment beyond that which is perceived necessary to define the requirement. It shall be the responsibility of the contractor to verify completeness of the equipment list and the suitability of the device to meet the total requirement of these specifications. Any reference to one manufacturer's equipment is meant as being descriptive only as to level of quality and type of equipment desired, but not restrictive as manufacturer. A system diagram is included as Exhibit A. The vender will supply any new network equipment needed for the entire system. The city has a IV&C system in the police department currently the software and any equipment that will not work on the new system is to be upgraded as part of the bid the replaced equipment and software will be available for a trade in.

Bidder must offer two (2) year warranty on parts and service. Bidder must price as an option a second third, fourth and fifth year service contract. Equipment must be installed, functional checks completed and operational within the 150 days. There must be minimum disruption of service to the city during installation. Warranty must be based on twenty-four (24) hour a day, seven (7) days a week On-call service with a maximum response time of four (4) hours. Bidder must be factory authorized sales and service for principal products as proposed in this bid. All bidders must have at least five (5) years experience building CCTV systems. A list of references spanning five (5) years shall be available upon request. Bidder must have a service facility no more than a 1-hour drive time from the City Of Huron.

Bidder must have employees who are factory trained by the manufacturer on service and installation of the principal products of this bid. Bidder must have spare stock, parts, test equipment and properly equipped service vehicles to properly engineer, install, and maintain the equipment bid. Successful bidder will supply all equipment, interfacing, hardware, connectors, necessary wiring and cabling and installation labor. All items must be individually priced. Failure to individually price equipment will disqualify bidder.

Items in this specification, which materially contribute to equipment performance, reliability, and serviceability, will not be compromised. Bidders shall offer that equipment which most nearly meets the specific detail of these specifications. Where deviations from these specifications are necessary, the bidder must state in writing at the time of the bid opening, the specific deviations and why, in his opinion, the equipment he proposed will render equivalent or better performance and reliability. Such deviations shall be referenced to the proper item in the specifications. Failure to detail such deviations shall provide grounds for rejection of the bids as unworthy of further consideration. If no deviations are noted, the purchaser shall assume complete conformance to these specifications and the successful bidder will be required to perform accordingly. No partial bids will be accepted.

All questions regarding this bid shall be submitted, in writing, to _____ by the bidder and will be answered by the City in writing.

A Mandatory Pre-bid meeting will be held at City Of Huron on _____. All interested bidders must attend in order for their bids to be considered. All Pre-bid questions shall be submitted in writing to the attention of _____ one (1) week prior to the bid meeting.

All wiring and equipment in ceiling areas rated as plenums must be plenum rated. All wiring must be installed with suitable hangers. All wiring and terminations must be documented and two (2) copies left at site with service manuals for every piece of equipment supplied.

Insurance

All Contractors providing on site services must maintain the following insurance coverage in force. Those contractors shall supply certificates of insurance evidencing such coverage and certifying that the coverage shall not be materially altered without at least thirty (30) days advance written notice to the owner. The owner shall be listed as a coinsured on all insurance certificates.

(a)	Workman's Compensation and Occupational Disease	Statutory Limits
(b)	Employers Liability	$1,000,000.00
(c)	Comprehensive General Liability (Including products and completed operations)	
	Bodily Injury	$1,000,000.00 each occurrence
	Property Damage	$1,000,000.00 each occurrence
		$2,000,000.00 aggregate

Contractual liability coverage including the indemnification provisions of those conditions must be fully insured under this policy for liability limits set for above.

(d)	Comprehensive Automobile Liability	
	Combined Single Limit	$1,000,000.00 each accident

This insurance must include non-owned, hired or rented vehicles as well as owned vehicles.

(e) Builders risk installation floater coverage including replacement
. $50,000.00

Lightning Protection Specifications for All Equipment

All 110 volt equipment must be protected to 35,000 amps within 5Ons of wave front exceeding 200 volts based on IEEE 8 by 20 waveform.

All antenna lines must be protected to 20,000 amps based on IEEE 8 by 20 waveform within 5Ons or wave front reaching 600 VDC with less than 600 μJ throughput energy with a worst case strike of 20 kV/μsecond.

All control lines must be protected to 10,000 amps based on IEEE 8μs rise/20μs decay waveform each side of pair within 2.5ns of wave front reaching 1/0 volts. All station equipment is to use a single point ground.

BID SPECIFICATION INDEX

1. **Replace Existing Camera System in Police Station**
2. **Install New Cameras at Water and Street Department**
3. **Install New Cameras at City Hall**
4. **Install New Wireless 4.9 GHz Licensed Microwave Network**
5. **Install New Cameras at Boat Dock With 48' Wood Pole**
6. **Install New Cameras at Boat Basin**

1. Replace Existing Camera System in Police Station

Seven (7) new IP dome cameras will be installed throughout the police department building to replace the cameras that currently have audio capability all other cameras will be reused if possible. Where they exist the current camera mounts and housings can be reused all other locations will have a new dome. A new server will be installed in the it room and be used in conjunction with the existing server a complete new video management system will be installed to handle all of the city's cameras. Cameras will be installed based on Exhibit B1

2. Install New Cameras at Water and Street Department

Seven (7) new IP cameras will be installed throughout the water and street department buildings per the enclosed drawings. There is a conduit between the two (2) buildings. One (1) PTZ camera will be installed on the existing pole in the parking between the buildings. One (1) mega pixel camera will be used at the front gate. All other cameras are domes outside cameras are Vandal resistant cameras will be installed based on Exhibit C1.

One (1) new monitor at the water department will be bid as an option.

3. Install New Cameras at City Hall

(4) New IP cameras will be installed throughout the city admin buildings per the enclosed drawings exhibit B all cameras are vandal resistant domes all network connections will be terminated into the police ccty network

4. Install New Wireless 4.9 GHz Licensed Microwave Network

A new 4.9 GHz microwave network will be installed throughout the city per the enclosed drawing Exhibit A1. This will provide at least 54 mbps throughout and will be expandable for future upgrades.

5. Install New Cameras at Boat Dock With 48'Wood Pole

Two (2) new box IP cameras with heated and cooled outdoor environmental housings will be installed at the boat dock on a 48'wood pole. The cameras and microwave will operate on a solar powered battery backed up system grid. Power will not be available.

6. Install New Cameras at Boat Basin

Two (2) New box IP cameras with heated and cooled outdoor environmental housings will be installed at the boat basin on a building. The cameras and microwave will operate on a solar powered battery backed up system grid. Power will not be available.

Video Management System

General System Description

A. The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and shall empower a flexible rule-based system driven by schedules and events.

B. Recording Servers shall be used for recording video feeds and for communicating with cameras and other devices. The Recording Servers shall process the recording and playback the video streams.

C. A Management Server shall be the central manager of the system and control Recording Servers, cameras, devices and users. The Management Server shall handle the initial client logon, system configuration and logging.

D. The Management Server shall allow access to a System Manager from where the administrator can configure and manage all servers, cameras and users.

E. The system shall allow the Management Server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.

F. The Video Management System shall allow for an unlimited number of cameras to be connected to each Recording Server and for an unlimited number of Recording Servers to be connected to each management Server across multiple sites if required.

G. The Video Management System shall support high availability of Recording Servers. A failover option that provides standby support for Recording Servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.

H. The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.

I. The Video Management System software needs to be from the original equipment manufacturer and cannot be delivered under a secondary Video Management System branding.

J. The Video Management System shall support Microsoft Windows XP Professional, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Vista (Business/Enterprise/Ultimate) and Microsoft Windows 7 (Business/Enterprise/Ultimate) with the latest patches and service packs installed. The system shall use Direct X and .Net Framework.

K. The Video Management System software shall include Multicast and Multi-streaming support.

L. The Video Management System shall include automatic camera discovery.

M. The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.

N. The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the Client Viewer.

O. The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. This map functionality will allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.

P. The Video Management System shall have the support for video wall applications being flexible and hardware independent allowing the option for seamless integration with system management and Client Viewer environments.

Q. The Video Management System shall for export purposes support 56-bit encryption of video. The 56-bit encryption shall meet the US Government requirements on export limits for encryption.

R. The Video Management System shall support full two-way audio between clients and remote devices. Two-way audio integration shall support the following features and functions:

1. Microphone inputs to clients shall transmit audio streams to speakers attached to remote IP devices.

2. Audio from remote IP devices equipped with microphones shall be transmitted to and recorded by the Recording Server. The audio shall be relayed to clients equipped with speakers.

3. Operator audio to IP devices shall be recorded by the Recording Server.

S. Each speaker and microphone shall be assigned to a device which by default is the same as the device that they are connected to. The speaker and microphone shall have the capability to be assigned to other devices as well.

T. The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.

U. The Video Management System shall provide through audit logs to show full awareness of the system and user activity through comprehensive logs.

V. The Video Management System shall include support for a graphical alarm management application module. The Graphical Alarm Management Module shall allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. The Graphical Alarm Management Module shall support graphical displays with interactive icons to display the status of cameras and other inputs.

W. The Video Management System shall include support for a Transactional Data Module designed to integrate with Point of Sale (POS), or Automated Teller Machine (ATM) data and time-link video recordings with POS, or ATM transactions.

X. The Video Management System shall include support for a frame work data module designed to integrate multiple third party video content analysis (VCA) solutions seamlessly into Client Viewer environments.

Y. The Video Management System shall include a Software Development Kit (SDK) that shall offer important capabilities for integrating the system with 3rd-party software. The SDK shall enable the user to:

1. Retrieve live and recorded video in several ways:

   a. In raw data format either encoded, or decoded.

   b. As a window to be resized and shown embedded in another application.

2. Create plug-in components for the Client Viewer.

3. Retrieve alarm/event information.

4. Integrate data sources for the Transactional Data Module.

Z. The Video Management System shall include a stand-alone viewer application to be included with video exported from the Client Viewer application. The viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.

AA. The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, be available on the network.

BB. The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.

CC. The Video Management System shall consist of the following main components:

1. Management Server
2. Recording Server
3. Failover Server
4. Map Server
5. System Manager
6. Client Viewer
7. Remote Client Viewer

DD. The Video Management System shall support the following optional components:

1. Graphical Alarm Management Module
2. Transaction Data Module
3. Video Content Analysis Framework Module
4. Video Wall Module

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation.

Control and Management Systems

A Management Server shall control the Video Management System so that the system administrator has full control of all system components locally, or from a remote location.

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation.

Management Server

EE. The Management Server is for client logon, system configurations, and logging.

FF. A System Manager is used for remote administration of Recording Servers, devices, security, rules, alerts, and logging.

GG. The Management Server shall store the system's configuration in a relational database, either on the Management Server computer, or on a Microsoft SQL Server on the network.

HH. The Management Server shall support redundant/parallel ISCSI drives for the Operating System data.

II. The Management Server shall manage all user authentication and user rights.

JJ. The Management Server shall run as a windows service and is recommended to run on a dedicated computer on the network.

KK. Registration of the system shall allow for online activation and offline activation of licenses.

LL. The Management Server shall support static assigned IP addresses or hostnames, obtain IP address from a DNS/DHCP server, and support IPv4 or IPv6 addressing.

MM. The operational status of the Management Server shall be displayed in the system tray. Icons in the system tray shall indicate the status; Starting, Running, Stopping and Stopped.

NN. The Management Server shall maintain a continuous log of server status messages accessed from the status Icon in the system tray.

OO. The system shall via a wizard be able to scan an IP network range for new devices including automatic model detection.

PP. The Management Server shall allow for the grouping of devices for group administration, or administration on a device level.

Rules and roles Support

A. The system shall support the use of rules to determine highly important settings such as when cameras shall record, when PTZ cameras shall patrol, when notifications shall be sent etc.

B. The system shall support the use of roles to determine user rights e.g. which of the system features each user or groups are able to use.

Failover Support

C. The system shall support automatic failover for Recording Servers. This functionality shall be accomplished by one Failover Server as a standby unit that shall take over in the event that one of a group of designated Recording Servers fails. Recordings shall be synchronized back to the original Recording Server once it is back online.

D. The system shall support multiple Failover Servers for a group of Recording Servers.

E. The system shall provide for monitoring of all Failover Servers from the Graphical Alarm Management Module.

F. The system shall provide seamless access to recordings on the failover Server for all clients through the same client views once the services are fully started.

Multicast Support

G. The system shall support multicasting of video feeds to client workstations in order to conserve network resources.

H. Multicasting shall send a single stream of video to multiple clients, where the stream may be decoded and displayed on all clients simultaneously. This functionality shall support virtual matrix configurations.

I. The infrastructure provided for the system shall support Internet Group Management Protocol (IGMP) for each remote network.

J. The system shall automatically switch to unicast if the client fails to connect to the multicast stream.

Multi-streaming Support

K. The Management Server shall accept, display and record individual streams of video from each camera that supports it, e.g. display a stream in MPEG format and record another stream in JPEG format. The intent of this functionality is to provide independent streams of video from the camera to the server with different resolution, encoding and frame rate.

L. Multi-streaming support shall allow the system to be configured with MPEG-4 with a high frame rate for live viewing and shall allow the system to be configured with high resolution MJPEG at low frame rates for recording and playback.

M. The system shall allow recorded video to be recorded at a lower frame rate to preserve disk space and network bandwidth.

SNMP Support

N. The system shall act as an SNMP agent which can generate an SNMP trap as a result of rule activation in addition to other existing rule actions.

O. The system shall utilize Microsoft Windows SNMP Service for triggering of SNMP traps.

NAT Firewall Support

P. The system shall support port forwarding, which shall allow clients from outside of a Network Address Translation (NAT) firewall to connect to Recording Servers without using a VPN.

Q. Each Recording Server shall be mapped to a specific port and this port shall be forwarded through the firewall to the Recording Server's internal IP address.

Management Server Redundancy

R. The Management Server shall provide a resilient system solution based on Windows Server Clustering, to secure maximum uptime.

S. The system shall support an installation on multiple servers within a cluster of two servers, or more. In case a server in the cluster fails, another server in the cluster will automatically take over the failed server's job running the Management Server. The process of switching over the server service to run another server in the cluster shall happen automatically.

Graphical Alarm Management Module

T. The Graphical Alarm Management Module shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices. The Graphical Alarm Management Module shall provide a real-time overview of alarm status, or technical problems while allowing for immediate visual verification and troubleshooting.

U. The Graphical Alarm Management Module shall provide interface and navigational tools through the Client including;

1. Graphical overview of the operational status and alarms from servers, network cameras and external devices including motion detectors and access control systems.

2. Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices, or through a tree-view format.

V. The Graphical Alarm Management Module shall provide for intuitive alarm management through the use tools including;

1. Detailed listing of all active or incoming alarms with available filters for time period, alarm source, operator and alarm state.

   a. Alarm states shall include; New, Open, Assigned, in progress, Processed, Resolved, Reject, Wait, On-hold, Ignore, Closed and Auto Closed.

2. Ability to reassign alarms to other operators based on: Changes of state for one/multiple, or all alarms, change of alarm priority, entering incident-specific log information and the suppression (snooze function) of alarms.

3. Ability to preview, view live, or playback recorded images.

4. Automatically close an alarm based on a corresponding event.

5. Generate audit trail reports by incident.

W. The Graphical Alarm Management Module shall provide for operations management tools including the ability to;

1. Enable and disable the monitoring of specific servers.

2. Acknowledge, or suppress operational status messages for a period of time e.g. during scheduled maintenance.

X. The Graphical Alarm Management Module shall allow for system configuration through tools including:

1. Ability to establish connection to servers by DNS name, or IP address and use built-in accounts in legacy systems for server authentication.

2. Ability to create multi-level maps with servers, cameras and external objects.

3. Trigger alarms by events from servers, cameras, or external devices and pre-assign them with priority, operator, optional display of live video on remote Monitor and link to related cameras.

4. Supported events like Archive Failure, camera deleted, external event, motion detected, camera, or server responding, or not responding, and running out of disk space.

5. Import users and groups from Microsoft Active Directory for operator authentication and authorization.

6. Define role-based groups and assign operators to these to achieve different access rights by type, or camera.

Y. The Graphical Alarm Management Module shall provide for interface and navigational tools at the server level including:

1. Client/Server based architecture using HTTP and XML for data communication.

2. Support for multiple legacy master/slave servers on several remote locations.

3. Central logging of incoming alarm and system information in SQL database.

Z. The Graphical Alarm Management Module architecture shall be .NET based with the server component accessed through a client application running on Windows XP Pro, or Windows Server 2003 servers.

AA. The Graphical Alarm Management Module shall include flexible access rights and allow each user to be assigned several roles where each shall define access rights to cameras.

Transactional Data Integration Module

BB. The Transactional Data Integration Module shall allow the operator to search and view transactional data that is time-linked with video recordings of the transaction activities.

CC. The Transactional Data Integration Module shall integrate digital video surveillance images with Point of Sale (POS), or Automated Teller Machine (ATM) transaction data. The module shall allow the operator to efficiently answer questions critical to an investigation including;

1. Did the employee enter the right amount for the product visible on the counter?

2. Were all the items scanned at the register?

3. Was a returned item handled properly?

4. Was the employee discount given to a non-employee?

5. If use of a stolen credit card was reported what did the customer look like?

DD. The Transactional Data Integration Module shall allow the ATM, or POS transaction data to be integrated with the system via an open interface supporting a serial server, serial cable, or IP connection. The module shall be compatible with any TCP/IP, or serial ASCII data source.

EE. The Transactional Data Integration Module shall allow views to be created in the Client Viewer with the transaction data and associated video to be displayed in separate windows.

FF. The Transactional Data Integration Module shall include a filter to allow the user to edit the transaction data and remove unwanted or unnecessary data from the ATM, or POS database.

GG. The Transactional Data Integration Module shall allow the user to search for transactions by register/ATM, camera, date, time, or free text. All transactional data shall be stored in an SQL database.

HH. The Transactional Data Integration Module shall utilize a client/server architecture using HTTP, or TCP directly for communication.

II. The Transactional Data Integration Module shall be supported as a plug-in by the Client.

Video Content Analysis Framework Module

JJ. The Video Content Analysis Framework Module shall enable the integration of multiple Video Content Analytics (VCA) systems from different manufactures.

KK. The Video Content Analysis Framework Module shall provide a single, easy-to- manage interface.

LL. The Video Content Analysis Framework Module shall handle video analytics from different types of Video Content Analytics systems.

1. Server-based

2. Edge-based

3. Library-based

MM. The Video Content Analysis Framework Module shall support a common alert XML format to convert other third party analytics components.

NN. The Video Content Analysis Framework Module shall utilize a central database for all alerts.

OO. The Video Content Analysis Framework Module shall allow the correlation of alerts from multiple analytics to verify these alerts with multiple behaviors in a single user interface.

PP. The Video Content Analysis Framework Module shall be able to view multiple alerts simultaneously.

QQ. The Video Content Analysis Framework Module shall utilize a Client and allow an operator to create views with pre-defined filters and search criteria.

Video Wall Module

System

RR. The Video Wall Module shall be hardware independent and run on standard servers and displays with no special video wall hardware, or network configurations required.

SS. The Video Wall Module shall be flexible and seamlessly scalable with the ability to support any number of Video Wall Modules with any number and combination of monitors.

TT. The Video Wall Module shall support the following languages; English, Arabic, Simplified Chinese, Traditional Chinese, Czech, German, Danish, Spanish, French, Hungarian, Italian, Japanese, Korean, Dutch, Polish, Russian, Swedish, Turkish, Slovak and Finnish.

Management

UU. The management of the Video Wall Module is to be fully integrated with the System Manager.

VV. The Video Wall Module must be intuitive and allow for easy definition of wall views, size, and position of any number of monitors.

WW. The Video Wall Module shall allow for the assignment of user actions based on user rights.

XX. The Video Wall Module shall be controlled using the rule system in the System Manager.

Control

YY. The Video Wall Module shall allow dynamic user control of wall layout and content through drag-and-drop of cameras and views in to the Video Wall Module via the Client Viewer.

ZZ. The control of the Video Wall Module shall enable instant insertion of a camera in to a specific monitor, or position.

AAA. The Video Wall Module shall allow for the intuitive integration with map functions enabled with drag-and-drop of cameras to the map.

BBB. The Video Wall Module shall support automatic event driven control of layout and content based on the rules such as motion detection, I/O, integrated 3rd party applications, time, or video content analytic events.

View

CCC. Individual client users can view wall views as a part of the available view selection, enabling the wall to be used as an operator collaboration tool.

Video Device Drivers

Video device drivers are installable program components used for controlling/communication with the camera/devices connected to a Recording Server. Video device drivers for supported devices are automatically loaded during the initial installation of the system. Newly released device drivers may be downloaded from the VMS provider's website if the user is connecting a device for which the driver is not already loaded.

Port Numbers

The system shall use the following default ports for specific purposes.

DDD. Port 20 and 21: Used when Recording Servers listen for FTP information; some devices use FTP for sending event messages.

EEE. Port 25: Used when Recording Servers listen for SMTP information; some devices use SMTP (email) for sending event messages.

FFF. Port 80: While not directly used by the system, port 80 is typically used by the IIS (Internet Information Services) Default Web Site for running the Management Server service.

GGG. Port 554: Used by recording servers for RSTP traffic in connection with H.264 video streaming.

HHH. Port 1024: Used for HTTP traffic between cameras and servers.

III. Port 5432: Used when Recording Servers listen for alert socket/TCP information; some device use TCP for sending event messages.

JJJ. Port 7563: Used for handling web server requests, for example for handling PTZ camera control commands, and for browse and live request from Client Viewers.

KKK. Port 8844: Used for communication between recording servers and the Management Server.

LLL. Port 9993: Used for communication between Recording Servers and the Management Server.

MMM. Port 11000: Used by failover servers for polling (i.e. regularly checking) the state of recording servers.

NNN. Port 12345: Used for communication between Client Viewer and Matrix recipients.

Monitoring and Supervisory Interfaces

The system shall support a centralized System Manager to control the Video Management System. The system shall support remote client interfaces to see live and recorded data with the ability to control (devices) i.e. PTZ cameras, microphones, speakers, inputs and outputs.

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation.

System Manager

OOO. The System Manager shall provide a feature-rich administration client for system configuration and day-to-day administration of the system.

PPP. The System Manager shall be typically installed on the Video Management System administrator's workstation.

QQQ. The System Manager shall be used to authorize the Recording Servers connected to the system.

RRR. The System Manager shall utilize licenses to manage each Recording Server and camera connected to the system. One license shall be required for each connected camera.

Archive Wizard

The system shall include an Archive Configuration Wizard for the efficient creation and management of the Recording Server's archives. The Wizard shall allow configuration of the following criteria for recording archives:

SSS. Descriptive name for the archive.

TTT. Definition of the path to the directory to be used for archiving. (Directory may be located anywhere on the network).

UUU. Definition whether archive directory shall be the Recording Server's default archive. (Note: all archiving shall be directed to the Recording Server's archive directory unless otherwise defined).

VVV. Definition of the number of hours for which recordings shall remain in a camera's database (Database Retention) before the recordings can be archived.

WWW. Selection of the maximum number of days for which recordings shall be stored in the archive.

1. Selection of the maximum number of gigabytes (GB) of recording data to store in the archive.

2. Scheduling when the intervals of the archiving process will start.

Database Configuration Wizard

The system shall include a Database Configuration Wizard for the efficient configuration of the recording Server's database storage areas. The Wizard shall allow the user to define storage areas for the databases of specific cameras, or define new storage areas on the Recording Server, or on a connected network drive. To protect against lost recordings in the event a connected network drive becomes unavailable, the system shall support generation of email notifications to selected individuals, with the notification of the unavailability of the selected network drive. All events will be logged.

Hardware Detection Wizard

The System Manager shall include a Hardware Detection Wizard to detect and set-up IP devices on the network. The Wizard shall provide two modes of operation.

XXX. Automatic Hardware Detection shall allow the user to specify the IP address ranges for the IP devices to be detected. The Wizard shall include an Auto Detect feature to detect IP devices within the specified address range. Detected IP devices shall automatically be added to the Recording Server and displayed under the Recording Server in the Navigation window.

YYY. Assisted Hardware Detection shall allow the user to enter the exact address, port number, user name, password, and hardware driver of each required device. The Wizard shall include an auto detect feature for the hardware driver. Each device added to the Recording Server will appear in the Navigation window.

Handling Cameras

ZZZ. The System Manager shall manage all cameras connected to the Recording Servers. Enabling/disabling cameras shall be performed through the System Manager.

AAAA. The System Manager shall handle camera database management. Individual camera databases shall be managed through a Database Configuration Wizard from within the System Manager.

BBBB. The System Manager shall support configuration of all cameras in the system.

Handling Microphones

CCCC. The System Manager shall manage devices with microphones connected to the Recording Servers. Enabling/disabling microphones shall be performed through the System Manager.

DDDD. Microphones shall automatically be detected when adding devices to the system through System Managers Hardware Detection Wizard. Microphones shall be disabled by default and enabled from the System Manager in the Recording Server. The status of an enabled microphone shall be displayed in the System Manager GUI.

Handling Speakers

EEEE. The System Manager shall manage devices with speakers connected to the Recording Servers. Enabling/disabling microphones shall be performed through the System Manager.

FFFF. Speakers shall automatically be detected when adding devices to the system through Systems Managers Hardware Detection Wizard. Speakers shall be disabled by default and enabled from the System Manager in the Recording Server. The status of an enabled speaker shall be displayed in the System Manager GUI.

Handling Inputs

GGGG. The System Manager shall manage devices (cameras and encoders) with input ports for the monitoring of a digital sensor's (on/off) state shall be managed from the System Manager. All inputs from external sensors shall be treated as events by the system. External sensors such as door position switches can be used to trigger events that are used in rules to automatically cause a camera to be recorded.

HHHH. Inputs shall automatically be detected when adding devices to the system through Systems Managers Hardware Detection Wizard. Inputs shall be disabled by default and enabled from the System Manager in the Recording Server. The status of an enabled input shall be displayed in the System Manager GUI.

IIII. The System Manager shall allow inputs to be grouped using Device Groups. Device groups allow the user to specify common properties for all inputs in a common device group.

Handling Outputs

JJJJ. The System Manager shall manage devices (cameras and encoders) with output relays for the control of an external device. Outputs may be activated by rules, or manually by a user.

KKKK. Outputs shall automatically be detected when adding devices to the system through Systems Managers Hardware Detection Wizard. Outputs shall be disabled by default and enabled from the System Manager. The status of an enabled output shall be displayed in the System Manager GUI.

LLLL. The System Manager shall allow outputs to be grouped using Device Groups. Device groups allow the user to specify common properties for all outputs in a common device group.

Handling Rules

MMMM. The system shall support the use of rules to determine when specific actions occur. Rules shall define what actions shall be carried out under specific conditions. The system shall at a minimum support the following rule initiated actions:

1. Start and stop recording
2. Set non-default live frame rate
3. Set non-default recording rate
4. Start and stop PTZ patrolling
5. Pause and resume PTZ patrolling
6. Move PTZ cameras to specific positions + default position
7. Set output to activated/deactivated state
8. Send notifications via email

9. Generate log entries

10. Generate alerts

11. Apply new device settings, for example a different resolution on a camera

12. Start and stop plug-ins

13. Start and stop feeds from devices

14. Pop-up video on designated Matrix recipients

15. Send SNMP trap

16. Set Video Wall to preset

17. Set Video Wall monitor to show cameras

NNNN. Rules shall be triggered by events, or time, or a combination of both.

1. An example of a time-based rule: On Mondays between 08:30 and 11:30 (time condition), Camera 1 and Camera 2 should start recording (start action) when the time period begins and stop recording (stop action) when the time period ends.

2. An example of an event-based rule: When motion is detected (event condition) on Camera 1, Camera 1 shall start recording (action) immediately, then stop recording (stop action) after 10 seconds.

3. An example of a rule involving several devices: When motion is detected (event condition) on Camera 1, Camera 2 should start recording (action) immediately, and the siren connected to Output 3 should sound (action) immediately; then, after 60 seconds, Camera 2 should stop recording (stop action), and the siren connected to Output 3 should stop sounding (stop action).

4. An example of a rule combining time, events and devices: When motion is detected (event condition) on Camera 1, and the day of the week is Saturday or Sunday (time condition), Camera 1 and Camera 2 should start recording (action) immediately, and a notification should be sent to the security manager (action); then, 5 seconds after motion is no longer detected on Camera 1, or Camera 2, the two cameras should stop recording (stop action).

OOOO. The system shall include certain default rules including:

1. Default Start Feed Rule – Ensures that video feeds from all connected cameras are automatically fed to the system.

2. Default Start Audio Feed Rule – Ensures that audio feeds from all connected microphones and speakers are automatically fed to the system.

3. Default Record on Motion Rule – Ensures that as long as motion is detect in images from the cameras, the images will be recorded.

4. Default Goto Preset when PTZ is Done Rule – Ensures that PTZ cameras will go to their respective default preset positions after they have been operated manually.

Rule Wizard

The System Manager shall include a Rule Wizard to guide the user in creating rules for the system. Macros shall not be required to develop and execute rules. The Rule Wizard shall utilize an intuitive approach to creating rules by listing only relevant options and ensuring that a rule will not contain missing elements. The Rule Wizard shall automatically suggest suitable stop actions to ensure that never-ending rules are not created. The Rule Wizard shall include the following configuration menus:

PPPP. Type of rule to generate (options)

1. Perform an action on <event>

2. Perform an action in a time interval

QQQQ. Select conditions to apply

1. Within selected time in <time profile>

2. Outside selected time in <time profile>

3. Within the time period <start time> to <end time>

4. Day of the week <Day>

5. Event is from <motion window>

6. Always

RRRR. Select actions to perform

1. Start recording on <devices>

2. Start feed on <devices>
3. Set <smart wall> to <preset>
4. Set <smart wall> <monitor> to show <cameras>
5. Set live frame rate on <devices>
6. Set recording frame rate on <devices>
7. Start patrolling on <device specific profile>
8. Pause patrolling on <devices>
9. Move <device> to <preset> position
10. Move to default preset on <devices>
11. Set device output to <state>
12. Send notification to <profile>
13. Make new <log entry>
14. Generate alert <alert type>
15. Start plug-in on <devices>
16. Stop plug-in on <devices>
17. Apply new settings on <devices>
18. Set Matrix to view <devices>
19. Send SNMP trap
20. Save attached images

SSSS. Select stop criteria

1. Perform stop action <event>
2. Perform stop action after a <time>
3. No actions performed on rule end

TTTT. Select stop action to perform

1. Stop recording
2. Stop feed
3. Set <smart wall> to <preset>

4. Set <smart wall> <monitor> to show <cameras>

5. Restore default live frame rate

6. Restore default recording frame rate

7. Resume patrolling

8. Stop patrolling

9. Move <device> to <preset> position

10. Move to default preset on <devices>

11. Set device output to <state>

12. Start plug-in on <devices>

13. Stop plug-in on <devices>

14. Apply new settings on <devices>

15. Set matrix to view <devices>

16. Send notification to <profile>

Handling Events

Events shall be used in the Rules Wizard to determine when an action is triggered. The following events can exist within devices, or Recording Servers.

UUUU. Device Events

1. Plug-ins

    a. Motion Started – Occurs when the system detects motion in images received from a camera.

    b. Motion Stopped – Occurs when the system no longer detects motion in images received from a camera.

2. Hardware Configurable

    a. Audio Falling – Occurs when the audio signal on an audio-enabled device is falling.

    b. Audio Passing – Occurs when the audio signal from an audio-enabled device reaches the threshold level.

c. Audio Rising – Occurs when the audio signal on the audio-enabled device is rising.

d. Images Received – Occurs when the pre-alarm images are available for selected cameras only; such cameras are capable of sending of one or more single still images from immediately before an event took place to the surveillance system via SMTP e-mail.

e. Input Activated – Occurs when an external input unit connected to an input port on a device is activated.

f. Input Changed – Occurs when the state of an external input unit connected to an input port on a device is changed, regardless of which state the external input unit is changed to.

g. Input Deactivated – Occurs when an external input unit connected to an input port on a device is deactivated.

h. Motion Started – Occurs when a camera detects motion in its images.

i. Motion Stopped – Occurs when a camera no longer detects motion in its images.

j. Tampering – Occurs when a device detects that it is being tampering with.

k. Temperature – Occurs when a device detects a temperature change, e.g. that a certain temperature is exceeded.

l. Video Lost – Occurs when a device detects that a video signal is lost.

3. Built-in

a. Communication Error – Occurs when a connection to a device is lost; or when an attempt is made to communicate with a device, and the attempt is unsuccessful.

b. Communication Started – Occurs when communication with a device is successfully established.

c. Communication Stopped – Occurs when communication with a device is successfully stopped.

d. Feed Overflow Started – Feed overflow occurs when a Recording Server is unable to process received images as quickly as specified in the configuration, and therefore is forced to discard some of the images.

e. Feed Overflow Stopped – Occurs when feed overflow ends.

f. Live Client Feed Requested – Occurs when a user of the Client Viewer requests a live stream from a device.

g. Live Client Feed Terminated – Occurs when a user of the Client Viewer no longer requests a live stream from a device.

h. Output Activated – Occurs when an external output unit connected to an output port on a device is activated.

i. Output Changed – Occurs when the state of an external output unit connected to an output port on a device is changed, regardless of which state the external output unit is changed to.

j. Output Deactivated – Occurs when an external output unit connected to an output port on a device is deactivated.

k. Manual PTZ Session Started – Occurs when a manually operated PTZ session (as opposed to a PTZ session based on scheduled patrolling, or automatically triggered by an event) is started on a camera.

l. Manual PTZ Session Stopped – Occurs when a manually operated PTZ session (as opposed to a PTZ session based on scheduled patrolling, or automatic triggering from an event) is stopped on a camera.

m. Recording Started – Occurs when recording is started.

n. Recording Stopped – Occurs when recording is stopped.

o. Settings Changed – Occurs when settings on a device are successfully changed.

p. Settings Changed Error – Occurs when an attempt is made to change settings in a device, and the attempt is unsuccessful.

VVVV. Recording Server events

1. Archive Available – Occurs when an archive for a Recording Server becomes available after having been unavailable.

2. Archive Unavailable – Occurs when an archive for a Recording Server becomes unavailable, for example if the connection to an archive located on a network drive is lost.

3. Database Disk Full – Occurs when a database disk is full. A database disk is considered full when there is less than 500 MB of space left on the disk. Note: In order to prevent operating system failures due to insufficient disk space, the oldest records in the database will automatically be deleted for all camera recordings on the disk in question when less than 500 MB of space is left on the disk containing the database, regardless of the time, or size limits specified for the database. This shall ensure that at least 500 MB of disk space shall be available for operating system use.

4. Database Repair – Occurs if a database becomes corrupted, in which case the system shall automatically attempt two different database repair methods: a fast repair and a thorough repair.

5. Database Storage Area Available – Occurs when a storage area for a Recording Server becomes available after having been unavailable.

6. Database Storage Area Unavailable – Occurs when a storage area for a Recording Server becomes unavailable, for example if the connection to a storage area located on a network drive is lost. When this is the case, it will not be possible to store recordings.

7. Failover Started – Occurs when a failover server takes over from a recording server.

8. Failover Stopped – Occurs when a recording server becomes available again, and is able to take over from the failover server.

WWWW. User-defined Events – Events custom-made for the individual system shall be available. Such user-defined events are used for making it possible for end users to manually trigger events while viewing live video in the Client Viewer, or

for third-party systems to trigger events. The system shall support an option to select/deselect defined user-defined events in roles where the property "External" is enabled.

Handling Alerts

The System Manager shall support Alerts, i.e. short messages created by the System Administrator. For example, Panic button activated, Emergency exit door opened, etc. Rules shall be used to trigger alerts. For example, when there is motion on the "Staff Entrance camera" start recording on that camera and generate alert "Employee Clocking In". Alerts triggered in this fashion shall be visible in two places:

XXXX. In the System Manager Alert log

YYYY. In the Client Viewer users shall be able to view a list of triggered alerts while browsing recordings. Alerts listed in the Client Viewer shall be clickable, allowing the users to quickly jump to the time at which an alert was triggered.

Handling Logs

The System Manager shall support five different logs related to the Management Server.

ZZZZ. A System Log that records system-related information and shall be searchable by Level, Source and Event Type.

AAAAA. An Audit Log that records remote user activity and shall be searchable by User name, User Location, Audit Category, Audit ID, Resource Type, Resource Host, Resource Name and Permission.

BBBBB. An Alert Log that records alerts triggered by rules and shall be searchable by Alert type, Source and Event type.

CCCCC. An Event Log that records event-related information and shall be searchable by Service name, Source and Event type.

DDDDD. A Rule Log that records rules in which the Make new <log entry> action been specified. The rule log shall be searchable by Service name, Source, Event type and Rule name.

EEEEE. The System Manager shall support the export of tab delimited text (.txt) files to a user defined location. The export feature shall allow the user to define the log, log elements, and time/date range.

FFFFF. All logs shall by default be enabled. The system shall allow the user to disable selected Alert, Event and Rule logs.

GGGGG. All logs shall by default be maintained for 365 days after which log entries will be deleted. Log entries shall also be deleted if the maximum number (of log entries) is exceeded prior to the specified retention period. The system shall allow the user to define how many days the log information shall be retained.

HHHHH. Log entries by default shall be limited to one million after which log entries will be deleted. Log entries shall also be deleted if the retention period is reached prior to the specified number (of log entries) is reached. The system shall allow the user to define how many log entries shall be retained up to the limit.

Matrix Functionality

IIIII. The system shall include an integrated Matrix solution for distributing video to any computer with the Client Viewer installed. A computer on which the matrix-triggered images can be shown is known as a Matrix recipient.

JJJJJ. The system shall allow a Matrix recipient to be included in a rule that triggers the video transmission (based upon an event) to the designated matrix recipient, or another user can send the images to the recipient.

KKKKK. Matrix Information details shall be available from the System Manager.

Customizing Layout

The system shall allow the user to customize the layout of the System Manager's GUI. All panes can be rearranged and different layout features can be combined. The following options shall be available:

LLLLL. Resizing panes

MMMMM. Moving panes

NNNNN. Using auto-hide

OOOOO. Resetting to the default layout

PPPPP. Toggling preview pane on and off

Handling Users, Groups and Roles

QQQQQ. The system shall support adding Users from Active Directory, or Users can also be added using local Windows user management on the Management Server. Users can belong to more than one group and groups can contain any number of users.

RRRRR. The system shall support the creation of Roles to determine which of the system features users and groups are able to use. Roles determine rights. There shall be no limit to the number of roles which may be defined. Users and groups are assigned to Roles to determine their user rights within the system. Rights shall be specified by the following categories:

1. Device Security Rights specify which features users/groups with the selected role shall be able to use for each device, or device group. Device right options shall include the following:

    a. Camera-related rights:

        1) Determine whether selected camera(s) will be visible in clients.

        2) Determine whether live viewing of video from selected camera(s) will be possible in clients.

        3) Determine whether browsing of recorded video from selected camera(s) will be possible in clients.

        4) Determine whether AVI or JPEG export feature can be used when browsing

recorded video from selected camera(s) in clients.

5) Determine whether database export feature can be used when browsing recorded video from selected camera(s) in the Client Viewer.

6) Determine whether Sequences feature can be used when browsing recorded video from selected camera(s) in clients.

7) Whether Smart Search feature can be used when playing back recorded video from selected camera(s) in the Client Viewer.

b. Microphone-related rights:

1) Determine whether selected microphone(s) will be visible in the Client Viewer.

2) Determine whether listening to live audio from selected microphone(s) will be possible in the Client Viewer.

3) Determine whether playback of recorded audio from selected microphone(s) will be possible in the Client Viewer.

4) Determine whether export feature can be used when playing back recorded audio from selected microphone(s) in the Client Viewer.

c. Speaker-related rights:

1) Determine whether selected speaker(s) will be visible in the Client Viewer.

2) Determine whether listening to live audio from selected speaker(s) will be possible in the Client Viewer.

3) Determine whether playback of recorded audio from selected speaker(s) will be possible in the Client Viewer.

4) Determine whether export feature can be used when playing back recorded audio from selected speaker(s) in the Client Viewer.

d. Input-related rights:

1) Determine whether information about selected input(s) will be visible to users of the Client Viewer as well as users of the add-on product Graphical Alarm Management Module that provides complete overview of surveillance system status and alarms.

e. Output-related rights:

1) Determine whether selected output will be visible in the Client Viewer.

2) Determine whether selected output can be activated from the Client Viewer.

2. PTZ Rights specifies which features users/groups with the selected role should be able to use:

a. Determine whether users/groups with the selected role are able to use the pan, tilt and the zoom features of the selected PTZ camera(s).

b. Determine whether PTZ Priority is used i.e. when several users on a surveillance system wish to control the same PTZ camera at the same time, conflicts may occur. This setting lets you alleviate the problem by specifying a priority for use of the selected PTZ camera(s) by users/groups with the selected role.

c. Determine whether users/groups with the selected role are able to move the selected PTZ camera(s) to preset positions.

3. Speech Rights specifies which loudspeaker features users/groups with the selected role should be able to use:

a. Determine whether users with the selected role will be able talk through the selected speaker(s).

b. Determine whether Speak Priority is used, i.e. when several Client Viewer users want to talk through the same speaker at the same time, conflicts may occur. This setting lets you alleviate the problem by specifying a priority for use of the selected speaker(s) by users/groups with the selected role.

4. Application Rights specifies which applications in the Video Management System users/groups with the selected role should be able to use. Users must be a member of the Administrator role to have access to the System Manager:

    a. Determine whether users/groups with the selected role are able to use the Playback tab in the Client Viewer and Remote Client Viewer.

    b. Determine whether users/groups with the selected role are able to use the Live tab in the Client Viewer and Remote Client Viewer.

    c. Determine whether users/groups with the selected role are able to use the Setup tab in the Client Viewer and Remote Client Viewer.

    d. Whether users/groups with the selected role are able to use the Status API (Application Program Interface) which is used in connection with the Graphical Alarm Management Module.

    e. Determine whether users/groups with the selected role are able to use the Service Registration API. This is used in connection with the Service Channel, a service that enables automatic and transparent configuration communication between servers and clients in your system.

5. User-Defined Events Rights specifies which user-defined events in the Video Management System users/groups with the selected role should be able to use:

    a. Determine whether users with the selected role should be able to manually trigger the selected user-defined event in their Client Viewer.

6. View Group Rights specifies which view groups (users/groups) with the selected role should be able to use:

    a. Determine whether users/groups with the selected role will be able to see the selected view group (and any views contained in the view group) in access clients.

    b. Determine whether users/groups with the selected role will be able to make changes to the selected view group (and any views contained in the view group) in access clients.

c. Determine whether users/groups with the selected role will be able to delete the selected view group (and any views contained in the view group) in access clients.

d. Determine whether users/groups with the selected role will be able to create sub-groups and views in the selected view group.

7. Matrix Rights specifies which Matrix recipients should be selectable for this purpose in the Client Viewer.

Handling Time Profiles

SSSSS. Time profiles shall be defined in the System Manager and used when creating rules. For example, a rule can be created that specifies that a certain action should take place within a certain time profile. Time profiles shall be flexible and be based on one, or more single periods of time, or on one, or more recurring periods of time. Setting time profiles in the system shall be similar to setting single or recurring appointments in Microsoft Outlook Calendar. Time profiles shall always apply to the local time. If the system has Recording Servers in different time zones, any actions associated with time profiles shall be executed in the specific time zone where the Recording Server is located. For example, a time profile covering the period 14:30 to 15:30 hours on a Recording Server located in Pacific Standard Time shall execute the actions defined in the rules when the local time is between 14:30 and 15:30 hours. The same rule on a Recording Server located in Eastern Standard Time will be executed 3 hours later when the local time is 14:30.

TTTTT. The user shall have the possibility to create a single time profile, or a recurring time profile. Recurring time profiles may be set to recur daily, weekly, monthly, yearly, or every number of weeks on a specific day of the week. The user shall also have the possibility of setting time profiles to start on a specific date and to never end, end after a number of occurrences, or end by a specific date.

Handling Notification Profiles

Notification profiles shall allow email notifications to be pre-defined and automatically triggered by a rule. For example when a specific event occur an email notification based on rules shall automatically be sent. The system shall support the attachment of still images, AVI video clips and system information to the email. Email notifications shall be created in the Rule Wizard.

Options

The system shall allow the user to specify certain settings related to; the appearance of the application, to logging, to mail server configuration, etc. The Options dialog box shall include the following tabs for specific settings.

UUUUU. A General tab shall allow the following to be specified:

1. Number of log rows to retrieve per page.

2. Default preview frame rate.

3. Maximum number of previews.

4. Motion detection "on" when adding cameras/devices.

5. Enable multicast live when adding camera devices.

6. PTZ manual session timeout.

VVVVV. A Server Logs tab shall allow the following to be specified:

1. Days to keep log entries (default 365) and Maximum number of entries (default 1,000,000) for each of the five log types.

2. Enable/disable Alert Log, Event Log and Rule Log function.

3. Include detailed information about specific user actions e.g. about users' viewing of live video and associated audio in the audit log.

4. Number of seconds to pass for viewed images to be considered to be within the same sequence.

5. Number of records to be viewed before logging the sequence.

WWWWW. A Mail Server tab shall allow the user to specify Sender email address, Outgoing mail (SMTP) server address, and specify if login is required and the required password.

XXXXX. An AVI Generation tab shall allow the user to select the CODEC and specify the Compression Settings, Compression quality, Key frame frequency and Data rate.

YYYYY. A Network tab shall allow the user to specify local IP address ranges.

System Manager, Graphic User Interface

The Graphic User Interface (GUI) of the System Manager shall consist of a number of panes for managing and viewing systems items. The panes shall be dynamic and change depending on the task. Typical panes are:

Navigation pane

A Navigation pane shall group the System Manager features into categories:

ZZZZZ. Basics – Containing general information and license information. The license information shall include the number of available licenses and used licenses for Recording Servers and cameras.

AAAAAA. Servers – Containing management of the Recording Servers and the Failover Servers connected to the system.

BBBBBB. Devices – Containing management of cameras, inputs and outputs. Selecting Devices in the Navigation pane shall allow the user to configure camera groups, individual cameras, input and outputs.

CCCCCC. Client – Containing management of view group and matrix configuration. If the Video Wall Module is installed on the system it shall appear in the Client pane.

DDDDDD. Rules and Alerts – Containing management of rules, time profiles, notification profiles and alerts.

EEEEEE. Security – Containing management of users, groups and roles.

FFFFFF. Server Logs – Containing access to the various logs in the system.

Overview pane

An Overview pane shall provide overview of the selected item. Selecting an item in the Overview Pane shall display the item's properties in the properties pane.

Properties pane

A Properties pane shall display properties of the item selected in the Overview Pane. The Properties pane shall include a number of tabs depending on the actual selection. Each tab shall allow the user to customize the above settings for the selected device.

Preview pane

A Preview Pane shall display preview images from selected cameras, or state information from selected microphones, speakers, inputs and outputs. The Preview pane shall display the live video from the camera, or group of cameras selected. The average image size and resolution in kB/frame for each camera shall be displayed with the image.

Servers menu

Selecting a Recording Server in the Navigation pane shall display the Recording Server and all its connected devices in the Overview pane. Selecting the Recording Server in the Overview pane shall allow the user to configure the server in the Properties pane. The Properties pane shall display tabs containing the following set-up functions.

GGGGGG. Info tab – that displays server name, description, host name, web server URL and time zone (of server).

HHHHHH. Storage tab – that allows the server storage area/location to be created, changed, or removed via an intuitive Database Configuration Wizard.

IIIIII. Archiving tab – that allows the user to configure and maintain archives for devices on the Recording Servers via an intuitive Archive Wizard.

JJJJJJ. Failover tab – that allows the user to select groups of failover servers taking over from the regular recording server in case this becomes unavailable. The Failover tab shall allow the user to set and change the TCP port (failover service communication port) used for communication between recording servers and failover servers.

KKKKKK. Multicast tab – that allows the user to enable/disable the multicast function and select the IP address range from where the client viewer(s) will connect when viewing multicast video from the recording server in question. Also, the port number range i.e. the first port number and the last port number in the range shall be selectable from the Multicast tab.

LLLLLL. Network tab – that allows the user to enable/disable Public address access. When the public address access is enabled the user shall be able to define the public address and public port number of the recording server in question. The

Network tab shall also allow the user to configure local IP ranges in case the client viewer(s) connect(s) from the local network.

Devices menu

Selecting Devices in the Navigation pane shall allow the user to configure camera groups, individual cameras, microphones, speakers, input and outputs.

MMMMMM. Selecting Cameras in the Navigation pane shall display all camera groups and individual cameras in the Devices pane.

NNNNNN. Selecting a camera group shall allow management of group Settings, Information, Streams (if supported by all grouped cameras), Record, Archiving, Client and Motion settings for the selected group.

OOOOOO. Selecting an individual camera within a group in the Devices pane shall allow the user to configure individual camera settings in the tabs of the Properties Pane.

1. An Info tab – shall manage the selected camera's Name, Description, Hardware name and Unit number.

2. A Settings tab – shall manage the selected camera's settings. Each camera manufacture will include a different set of parameters which may be adjusted with the Settings tab. The Settings tab shall allow groups of cameras from mixed manufacturers to have their common parameters to be adjusted as a group. **NOTE: The following parameters are listed for example purposes only**.

    a. General

        1) Brightness

        2) Compression

        3) Contrast

        4) Default Stream

        5) Include date

        6) Include time

        7) Resolution

8) Rotation

9) Saturation

b. JPEG Streamed

1) compression

2) Frames per second

3) Resolution

4) Rotation

c. MPEG

1) Bit rate control mode

2) Bit rate control priority

3) Compression

4) Frames per second

5) Maximum bit rate

6) Resolution

7) Rotation

8) Streaming Mode

9) Target bit rate

d. H.264

1) Bit rate control mode

2) Bit rate control priority

3) Frames per second

4) Maximum bit rate

5) Resolution

6) Rotation

7) Target bit rate

3. A Streams tab – shall manage the selected camera's video streams.

4. A Record tab – shall manage the selected camera's storage and recording settings, maximum storage limits

and database configuration. A Database Wizard shall be provided for the efficient management of recorded video. The Wizard shall allow the user to delete, or move the camera database.

5. An Archiving tab – shall manage the archiving settings of the selected camera. Archiving is the automatic transfer of recordings from the camera's default database to another location. From the Archiving tab it shall be possible to enable the camera and define archive name, path, schedule and the retention time for the database. An Archive Wizard shall help the user setting up the archiving.

6. A Presets tab – shall manage the selected camera's preset positions (tab is only available if the selected camera is a PTZ camera).

7. A Patrolling tab – shall manage the selected camera's patrolling profiles (tab is only available if the selected camera is a PTZ camera).

8. An Events tab – shall manage hardware configurable events.

9. A Client tab – shall manage client settings e.g. default microphone and speaker assignments.

10. A Motion tab – shall manage the selected camera's motion detection settings, including:

    a. Enable motion detection controls for motion activated recording on/off.

    b. Sensitivity of a group (8x8) of pixels on a scale from 0-300 with 0 being least sensitive and 300 being most sensitive.

    c. Motion the alarm trigger threshold on a scale of 0-10,000 based on the number of pixels in a group that must change to trigger an alarm.

    d. Process image every (ms) Options 100, 250, 500, 750 and 1000 (1 sec.). The greater the time period the less CPU processing power required.

    e. Optimized detection – When On, analyzes every fourth pixel of the area of interest only to reduce the processing requirements of the PC.

    f. Use exclude regions to define areas of the image that motion detection is not active based on regions defined in grids. Grid options are 8x8,

16x16 and 32x32. Motion detection shall be excluded in each square of the grids providing a choice of 64, 256, or 1024 regions of motion detection exclusion in the image. Each region shall be independently controllable on/off.

PPPPPP. Selecting Microphones in the Navigation pane shall display all microphones in the Devices pane. Selecting an individual microphone within a group in the Devices pane shall allow the user to configure the microphone settings in the tabs of the Properties pane.

1. An Info tab for defining the name, description and unit number of the selected microphone.

2. A Settings tab for managing the general settings of the selected microphone.

3. A Record tab for managing the selected microphone's storage and recording settings, maximum storage limits and database configuration. A Database Wizard shall be provided for the efficient management of recorded audio. The Wizard shall allow the user to delete, or move the microphones database.

4. An Archiving tab for managing the archiving settings of the selected microphone. Archiving is the automatic transfer of recordings from the microphone's default database to another location. From the Archiving tab it shall be possible to enable the microphone and define archive name, path, schedule and the retention time for the database. An Archive Wizard shall help the user setting up the archiving.

5. An Event tab for managing hardware configurable events.

QQQQQQ. Selecting Speakers in the Navigation pane shall display all speakers in the Devices pane. Selecting an individual speaker within a group in the Devices pane shall allow the user to configure the speaker settings in the tabs of the Properties pane.

1. An Info tab for defining the name, description and unit number of the selected speaker.

2. A Settings tab for managing the general settings of the selected speaker.

3. A Record tab for managing the selected speaker's storage and recording settings, maximum storage limits and database configuration. A Database Wizard shall be provided for the efficient management of recorded

audio. The Wizard shall allow the user to delete, or move the speakers' database.

4. An Archiving tab for managing the archiving settings of the selected speaker. Archiving is the automatic transfer of recordings from the speaker's default database to another location. From the Archiving tab it shall be possible to enable the speaker and define archive name, path, schedule and the retention time for the database. An Archive Wizard shall help the user setting up the archiving.

RRRRRR. Selecting Inputs in the Navigation pane shall display all Input groups in the Devices pane. Selecting an individual input within a group in the Devices pane shall allow the user to configure the input settings in the Tabs of the Properties Pane:

1. A Settings tab for defining the normally open or normally closed state of the input and the change that will generate an event in the system.

2. An Info tab for defining the name of the input, description of the input, name of the hardware to which the input is attached and the unit number, the physical input on the device.

3. An Event tab for defining how hardware-based events are activated. The user shall have the option to activate configured events based on a rising, or falling state.

SSSSSS. Selecting Outputs in the Navigation pane shall display all Output groups in the Devices pane. Selecting an individual output within a group in the Devices window shall allow the user to configure the output settings in the tabs of the Properties pane:

1. A Settings tab for configuring the active output state and output trigger time for a selected output, or group of outputs.

2. An Info tab for defining the name of the output, description of the output, name of the hardware to which the output is attached and the unit number, the physical output on the device.

Client menu

Selecting Client in the Navigation window shall allow the user to configure View Groups and Matrix Recipients.

TTTTTT. Selecting View Groups in the Navigation pane shall allow the administrator to add, rename, or remove a View Group.

1. A view group shall be the way in which video from one, or more cameras are presented in the Client Viewer. A view group is a container for one, or more logical groups of such views.

2. By default, each role defined in the System Manager shall also be created as a view group. When a role is added in System Manager it will appear as a view group for use in the Client Viewer.

3. A view group based on a role shall by default only be available to users/groups who have been assigned to the role.

4. A view group based on a role shall by default carry the role's name. For example; if a role is created named 'Building A Security Staff', it will by default appear in the Client Viewer as a view group called 'Building A Security Staff'. The system shall allow the user to change the name of the view group.

UUUUUU. Selecting Matrix in the Navigation pane shall allow the administrator to add, edit, or delete a Matrix Recipient.

1. An Add New Matrix setup shall allow settings of:

   a. Name – the name for the Matrix recipient.

   b. Description – a description of the Matrix recipient.

   c. Address – the IP address, or host name of the required Matrix recipient.

   d. Port – the port number used by the Matrix recipient installation.

   e. Password – the password of the Matrix recipient.

   f. Type – the type of added Matrix recipient.

VVVVVV. Selecting the Video Wall Module (add-on product) in the Navigation pane shall allow the administrator to add, rename, or remove a Video Wall.

1. An info tab shall allow settings of:

   a. The name of the Video Wall which is displayed in the Client Viewer as the Video Wall view group name.

b. A description of the Video Wall, for example; Video Wall located in Bloomington. The description is only used as internal information in the System Manager.

c. Status text – when selected will show camera and system status information across view items.

d. No title bar – when selected will show all Video Wall view items without title bars in the Client Viewer.

e. Title bar - when selected will show all Video Wall view items with title bars in the Client Viewer.

f. Title bar with live indicator – when selected will show all Video Wall view items' title bars display indicators.

2. A Presets tab shall allow to:

a. Add and delete virtual presets to the Video Wall, and edit names/descriptions of existing presets. The description shall only be used internally in the System Manager and shall not be displayed anywhere else. The actual definition of the preset properties is managed on the individual monitor's Presets tab.

b. Activate the preset for Client Viewer users, or create a rule to activate the preset.

3. A Layout tab shall allow to:

a. Display a graphical overview of the Video Wall.

b. Move monitors added to the Video Wall around in the layout window.

c. Move the monitors as a group so the monitors maintain their relative positions.

d. Change the Size and aspect ratio properties individually for each monitor in the Video Wall.

Rules and Alerts menu

Selecting Rules and Alerts in the Navigation window shall allow the user to configure Rules, Time Profiles, Notification Profiles and Alerts.

WWWWWW. Selecting Rules in the Navigation window shall display all rules in the Rules pane. New rules shall be configured within the Rule Wizard based on actions performed on events, or actions preformed on a time interval.

XXXXXX. Selecting Time Profiles in the Navigation window shall display all time profiles in the Time Profiles pane. Time profiles are used for specifying when a rule is activated. New time profiles shall be configured by start time/stop time; start day/stop day, and single, or recurring event. Time profiles shall also be in combinations with rules that are activated by events during certain time periods. Setting time profiles shall use features similar to Microsoft Outlook Calendar to simplify the process.

YYYYYY. Selecting Notification Profiles in the Navigation window shall display all notification profiles in the Notification Profile pane. Notification profiles shall be used to automatically send email notifications which can be triggered by rules. The system shall allow for still frames or AVI video clips to be included in an email notification. An outgoing SMTP Mail Server shall be required for sending email notifications. A CODEC shall be selected and an AVI compression setting shall be specified for the generation of AVI video clips to be included in email notifications. An Add New Notification Profile Wizard shall be provided to configure a new profile. The system shall allow for customization and use of system variables in the email Subject and Message text fields.

ZZZZZZ. Selecting Alerts in the Navigation window shall display all alerts in the Alerts pane. It shall be possible to add new alert types, delete, or rename existing alert types from.

AAAAAAA. Selecting User-Defined Events in the Navigation window shall display all user-defined events. It shall be possible to add new user-defined events, delete, or rename existing user-defined events.

Security menu

Selecting Security in the Navigation window shall allow the user to configure the rights for Users, Groups and Roles.

BBBBBBB. Selecting Roles in the Navigation window shall display all roles in the Roles Pane. The default role is Administrator and this role has complete and unrestricted access to entire system and all features.

1. Roles shall automatically become Client Viewer view groups. A Client Viewer view group consists of multiple camera views. The view group shall only be available to users/groups who have been assigned the role in question.

2. The system shall allow the user to specify the rights for: Users and Groups, Device, PTZ, Speech, Application, User-defined Events, View Group, Enterprise Servers and Matrix.

Server Logs menu

Selecting Server Logs in the Navigation window shall allow the user to search data from the 5 logs related to the Management Server:

CCCCCCC. The System Log records system-related information in the following columns:

1. Level: Displays an icon indicating the level of the log entry; info, error, or warning.

2. UTC time (Universal Time Coordinated): Timestamp in the international time standard.

3. Local time: Timestamp in the local time of the Management Server.

4. Description: Of the logged incident.

5. ID: Identification number of the logged incident.

6. Source Type: Type of equipment on which the logged incident occurred, for example Management Server, or Device.

7. Source Name: Name of the Management Server, device, etc. on which the logged incident occurred.

8. Event Type: Type of event represented by the logged incident.

DDDDDDD. The Audit Log records remote user activity in the following columns.

1. Level: Displays an icon indicating the level of the log entry; info, error, or warning.

2. UTC Time (Universal Time Coordinated): Timestamp in the international time standard.

3. Local Time: Timestamp in the local time of the Management Server.

4. Description: Description of the logged incident.

5. Audit Category: Type of logged incident.

6. Permission: Information about whether the remote user action was allowed (granted), or not.

7. ID: Identification number of the logged incident.

8. User: User name of the remote user causing the logged incident.

9. User Location: IP address, or host name of the computer from which the remote user caused the logged incident.

10. Resource Type: Type of equipment on which the logged incident occurred.

11. Resource Name: Name of device triggering audit.

12. Resource Host: Hostname of the Management Server or Recording Server, Video Wall Module etc. on which the logged incident occurred.

EEEEEEE. The Alert Log records alerts triggered by rules in the following columns.

1. Level: Displays an icon indicating the level of the log entry: info (the only level available in the Alert Log).

2. UTC Time (Universal Time Coordinated): Timestamp in the international time standard.

3. Local Time: Timestamp in the local time of the Management Server.

4. Alert Type: Type of logged incident.

5. Description: Description of the logged incident (if a description is available).

6. Source Type: Type of equipment on which the logged incident occurred. Since alerts are administrator-defined and relate to incidents on the system, the source type will normally be System.

7. Source Name: Name of the source on which the logged incident occurred, normally System.

8. Event Type: Type of event represented by the logged incident.

FFFFFFF. The Event Log records event-related information in the following columns.

1. Level: Displays an icon indicating the level of the log entry; info, error, or warning.

2. UTC Time (Universal Time Coordinated): Timestamp in the international time standard.

3. Local Time: Timestamp in the local time of the Management Server.

4. Description: Of the logged incident.

5. ID: Identification number of the logged incident.

6. Event Type: Type of event represented by the logged incident.

7. Service Name: Name of service on which the logged incident occurred.

8. Source Type: Type of equipment on which the logged incident occurred, for example Management Server, or Device.

9. Source Name: Name of the Management Server, device, etc. on which the logged incident occurred.

GGGGGGG. The Rule Log records rules in which the Make new <log entry> action is specified in the following columns.

1. Level: Displays an icon indicating the level of the log entry; info, error, or warning.

2. UTC Time (Universal Time Coordinated): Timestamp in the international time standard.

3. Local Time: Timestamp in the local time of the Management Server.

4. ID: Identification number of the logged incident.

5. Service Name: Name of service on which the logged incident occurred.

6. Rule Name: Name of the rule triggering the log entry.

7. Source Type: Type of equipment on which the logged incident occurred. Since log entries are administrator-

defined and relate to incidents on the system, the source type will normally be System.

8. Source Name: Name of the source on which the logged incident occurred, normally System.

9. Event Type: Type of event represented by the logged incident.

10. Generator Type: Type of equipment on which the logged incident was generated. Since the log entries are administrator-defined and relate to incidents on the system, generator type will normally be System.

11. Generator Name: Name (if any) of the equipment on which the logged incident was generated.

12. Description: Description of the logged incident (if a description is available).

Client Viewer

HHHHHHH. The Client Viewer shall provide remote users with a comprehensive suite of features including:

1. Viewing live video from cameras on the surveillance system from1 to 100 per view.

2. Playback recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.

3. Creating and switching between an unlimited number of views, each able to display video from up to 100 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user, or to groups of users based on 32 different layouts optimized for 4:3 and 16:9 display ratios.

4. Accessing views of cameras on any PC with a Client Viewer application installed.

5. Using multiple screens as well as floating windows for displaying different view simultaneously.

6. Quickly substituting one, or more of a view's cameras with other cameras.

7. Viewing image from several cameras in sequence in a single camera position in a view – a so called carousel.

8. Viewing video from selected cameras in greater magnification and/or higher quality in a designated hotspot.

9. Receiving and sending video through the Matrix functionality.

10. Include HTML pages and static images (e.g. maps, or photos) in views.

11. Controlling PTZ cameras.

12. Using digital zoom on live as well as recorded video.

13. Activating manually triggered events.

14. Activating external outputs (e. g. lights and sirens).

15. Using sound notifications for attracting attention to detected motion, or events.

16. Getting quick overview of sequences with detected motion.

17. Getting quick overviews of detected alerts, or events.

18. Quickly searching selected areas of video recording for motion (also known as Smart Search).

19. Skipping gaps during playback of recordings.

20. Configuring and using several different joysticks.

21. Printing images, with optional comments.

22. Copying images for subsequent pasting into word processors, email, etc.

23. Exporting recording (e.g. for use as evidence) in AVI, JPEG and database formats.

24. Using pre-configured as well as customizable keyboard shortcuts to speed up common actions.

25. Selecting between numbers of language versions, independent of language used on main surveillance system.

26. Communicating with remote audio devices, including microphones and speakers via a local microphone and speaker.

27. Listening to audio independently of the views/cameras being watched.

28. Insertion of overlay buttons for e.g. activation of speakers, events, outputs, movement of cameras etc.

29. Sequence Explorer function that lists thumbnail images representing recorded sequences from an individual camera or all cameras in a view.

30. Forced Playback mode allowing the user to playback recorded video from inside the Live mode while viewing Live video.

B. The Client Viewer shall allow remote users to connect to the Management Server for initial authorization. Upon authorization the Client Viewer will allow connection to the Recording Servers for access to video recordings.

C. The Client Viewer shall have the ability to adjust the display parameters for the video images, i.e. down speed the frames per second, or down sample the resolution from the Recording Server to optimize bandwidth utilization.

D. From the Client Viewer, the user shall have the option of having video images continually streamed, or only updated on motion to conserve bandwidth between the Client Viewer and the Recording Server.

E. The Client Viewer shall have the capability to serve as a host to 3rd-party applications through the use of a plug-in component.

F. The Client Viewer shall typically be installed on remote user's computers.

G. The Client Viewer shall provide a Graphical User Interface (GUI) and feature Live, Playback and Setup tabs for the convenient access of live and recorded video as well as setup of views.

H. The Client Viewer GUI (Graphical User Interface) shall be available in the following language versions: American English, Arabic, Simplified Chinese, Traditional Chinese, Czech, German, Danish, Spanish, Finnish, French, Hungarian, Italian, Japanese, Korean, Dutch, Polish, Russian, Swedish, Slovak and Turkish.

I. The Client Viewer shall be delivered with help system in the above mentioned languages but Finnish, Hungarian and Slovak.

J. The Client Viewer shall be equipped with a context-sensitive help system that covers the full Client Viewer functionality for operators to instantly get help on a certain topic.

K. The Client Viewer shall support the use of fisheye (360 degrees) cameras.

L. The Client Viewer shall support the use of standard PTZ controller, or 3-axis USB joysticks for control of pan, tilt, zoom and auxiliary camera functions.

M. The Client Viewer shall support the use of multimedia control devices, which are capable of emulating keystrokes, for the efficient review of recorded video.

N. The Client Viewer shall support the use of keyboard shortcuts for control of standard features. It shall allow the user to program numerical keyboard shortcuts for camera views. The shortcut number shall be displayed with the view description in the Live and Playback displays. The shortcut shall allow the user to change views with 2 to 3 keyboard entries.

O. The Client Viewer shall have the following two-way audio functions:

1. The Client Viewer shall allow an operator to play live audio from a camera's microphone and play back recorded audio.

2. The Client Viewer shall allow an operator to export audio together with video in the native database format.

3. The operator shall have a "press to talk" option which shall send the microphone input from the operator out to one IP device enabled speaker, or to all of them.

4. Each camera view item shall use the default assigned microphone and speaker, but the operator shall have the ability to select other audio devices, or to let the same speaker follow the operator when choosing other views.

P. The Client Viewer shall have the capability to receive multicast streams. The Client Viewer shall have the capability to detect if the network becomes unreliable and to automatically switch to unicast to ensure that the operator is able to receive video.

Q. The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall not affect recording, or other users.

R. The Client Viewer shall contain an Option dialog where it is possible to control which features and elements to be used on each of the Client Viewer tabs. The Option dialog shall contain settings for:

1. Customization of the general application look and behavior of the Client Viewer.

2. Customization of the Panes appearing on the Live, Playback and Setup tabs of the Client Viewer.

3. Customization of the Functions e.g. allowance of playing back recorded video on the Live tab.

4. Setup of connected Joystick.

5. Setup of connected Keyboard.

6. Selection of preferred Language.

S. The Client Viewer shall allow the operator to add unlimited numbers of overlay buttons controlling different actions, outputs, events, PTZs etc. assigned to the individual camera. The overlay buttons shall only appear in Live tab when the mouse is moved into a camera image view.

1. The Client Viewer shall support the following multiple viewing options:

a. Floating Window – Allows the currently selected view to be duplicated as a new floating view which may be moved to other connected monitors by dragging the image.

b. Send window to primary, secondary, or additional monitors.

c. Create views of up to 100 cameras per monitor.

d. Carousel – The Carousel feature shall allow the sequencing display of cameras in a view window. Multiple carousels may be defined to allow all view windows to display sequences of cameras. The operator shall have the ability to select the default display time, or to enter a custom display time for each camera in the carousel. From inside the camera view the operator shall have the option to manually switch to the next or previous camera in the carousel camera list as well as pausing at the current camera. When switching from one camera to the next the transition phase shall be completely smooth without any delay.

e. Hot Spot – The Hot Spot feature shall allow one position of a view to be designated as a hot spot and allow the camera displayed in the hot spot window to be viewed in a higher image quality setting, or higher frame rate than that of the

other windows in the view. This feature shall minimize bandwidth utilization by only pulling selected higher quality/higher frame rate images from the Recording Server. An orange border around the image shall identify the hot spot window in the view.

f. Static Image – The Static Image feature shall allow one position of a view to be used for displaying maps, or other images of interest to the user.

g. Matrix Window – The Matrix window shall display images from cameras on demand, or by an external event.

h. Dynamic Actions – The operator shall be able to assign outputs, PTZ presets, events and views as actions to joystick buttons and as keyboard shortcuts. The actions shall be ordered in categories to optimize overview.

i. HTML Page – The HTML Page feature shall allow for several navigation functions within the Client Viewer including:

1) Switching between views by clicking on a text description of the view in the HTML Page. For example; "Go to Shared Group 1 View 1".

2) Switching between different views by clicking on an interactive map area. For example; a site or building floor plan with interactive colored zones inserted as a HTML page would allow the user to switch views to a camera displaying images of the specific part of the site, or building.

3) Allowing maps to be created from standard image files (JPEG, GIF, TIF, etc.) and have interactive icons over-laid to activate additional maps and/or views.

4) Allowing HTML scripting for use in creating buttons for view navigation.

5) Allow web pages to be open in Client Viewer views.

2. The Client Viewer shall feature an Event window to allow the user to select events and manually trigger the selected event to occur. The event window shall list all

events grouped by server and camera/device that the event is associated with.

3. The Client Viewer shall feature an Output Control window to allow the user to manually activate an external output port on a device. The output window shall list all selectable outputs grouped by server and camera/device that the output is attached to.

4. The Client Viewer shall allow the user to control any PTZ camera within the displayed view. Depending on camera capabilities/camera model the typical method for controlling the PTZ functions is as follows; when the mouse cursor is placed on the video image the cursor pointer shall automatically change to a crosshair indicating the camera has PTZ capabilities. After centering the camera's field-of-view shall be accomplished by left clicking the crosshair on the area of interest within the image. Controlling the zoom function shall be accomplished by holding down the left mouse button and selecting a percent zoom from a scale of 0% to 100%, or by use of the mouse wheel.

    a. Additional control feature for Sony PTZ cameras includes ability to draw a rectangle around the area of interest to zoom the camera in for closer examination. The size of the rectangle shall be proportionate to the level of zoom, i.e., the smaller the rectangle the greater the zoom level achieved.

5. The Client Viewer shall feature a PTZ control pane on the GUI that provides 8 directional buttons and one home button.

    a. The PTZ control window shall provide a digital zoom feature for the user to digitally zoom in on the displayed image without affecting the recording, or the display of the camera on other Client Viewer applications.

    b. An overview image in the view shall display the normal field-of-view and the digital zoom area in a highlighted box to provide the user with spatial awareness.

    c. The PTZ control window shall allow the user to select pre-defined presets for PTZ cameras and drive the selected camera to the preset.

    d. The Playback tab shall allow the user to select the views for playback of recorded video. Views are defined in the Setup tab.

6. The current camera state shall be displayed on the title bar of the live view item window. A camera shall indicate that it is in live mode by a green "Live", in recording mode by a red "REC" and in stopped mode by a yellow "Stopped".

7. The system shall allow for live, or playback video to switch to full quality when maximized unless "Keep when maximized" is selected.

Live View

The Live tab shall allow the user to view live video, trigger manual events, control outputs, select audio inputs, and control PTZ cameras. The Live tab shall via a Views pane allow the user to select a view for display. The Live tab shall via an Event pane allow the user to select required events from a list where the selectable event is grouped by server and camera/device with which the event is associated. The Live tab shall via an Output pane allow the user to select required outputs from a list where the selectable output is grouped by server and camera/device to which the output is attached. The Live tab shall via an Audio pane allow the user to listen to live audio from selected microphones or talk to audiences through selected speakers attached to cameras. The Audio pane shall allow muting the live audio from the selected microphone temporarily. The Audio pane shall allow the user to talk through multiple speakers connected to the system simultaneously. The Audio pane shall contain a button that must be pressed as long as the user wants to talk through the selected speakers – to prevent transmission of unwanted sound. The Audio pane shall allow the user to lock the selected speaker talking through while selecting another view or camera attached with its own speaker The Live tab shall via the Sequence Explorer pane list thumbnail images representing recorded sequences from an individual camera or all cameras in a view. The Sequence Explorer shall be launched in a floating window.

8. The floating window shall allow changing between motion, time and event/alert thumbnails.

9. The floating window shall have controls for moving forward and backwards in time.

10. When clicking one of the various thumbnails, a preview video of the recorded video shall be displayed.

T. The Live tab shall via a PTZ control pane allow the digital zoom feature to be used in live mode.

U. The Live tab shall allow the operator to operate the overlay buttons. Via the overlay buttons it shall be possible to:

1. Activate speakers, events, outputs, move PTZ cameras, clear signals from cameras etc.

2. Activate camera features, e.g. camera focus, iris, auxiliary commands etc.

V. The Live tab shall allow an operator to force one, or more cameras to Playback mode. This function shall view recordings from the individual camera without leaving the Live tab.

1. When moving the mouse over a camera position a Start Playback button shall appear. Activating the Start Playback button:

a. The camera position shall switch to the most recent recorded image from the camera.

b. Control buttons for playing forward and backward in time shall appear controlling the direction of the video playback.

c. When activating the Play forward or Play backward control button it shall change to a pause button, allowing the operator to quickly pause playback at any point in the time without having to move the mouse pointer.

d. A slider knob shall allow the operator to quickly play the video backward, or forward. The slider function shall be graduated i.e. the farther the slider is moved from its center position the quicker the video shall play.

e. A display shall appear within the Playback Control panel displaying the time and date of the recordings viewed.

2. From the Forced Playback mode it shall be possible to browse recordings as long as the mouse pointer is inside the camera position.

3. It shall be clearly indicated that the selected camera is in Playback mode.

4. The time and image shall be set to the time of the last recorded image in the database.

5. When moving the mouse over an overlay button it shall indicate that it is accessible.

6. When an overlay button is pressed it shall indicate that it is activated.

7. From the Forced Playback mode it shall be possible to press a Back to Live mode button that easily shall bring the camera back to Live mode.

8. From the Forced Playback mode it shall be possible to press a GoTo the Playback tab where all cameras will be synchronized to the selected point in time.

Playback View

The Playback tab shall display motion activated sequences for the selected camera in a drop down menu. A line with the date, start time and duration shall represent each sequence. From a drop down preview screen the user shall be allowed to view the recorded sequence.

W. The Playback tab shall via a Views pane allow the user to select a view for display.

X. The Playback tab shall via a Sequences pane display an overview of recorded sequences for the camera selected in the view.

1. To play back recordings using the Sequences pane, the required camera in the view shall be selected. After clicking a Get Sequences button a list of up to 40 sequences shall be retrieved.

2. Each sequence shall be listed with date and time as well as the length of the sequence. Clicking a sequence in the list shall move all video in the view to the time of the sequence. An expand function shall display the exact date and time of the first and last image in the sequence as well as the exact date and time of the motion detection, event, etc. triggering the recording.

3. Sequences may often begin some seconds before a motion detection, event, etc. and end some seconds after. This so-called buffer allows you to be able to see what happens immediately before and after an incident; the buffer length is determined by the system administrator.

4. A selectable Preview function shall allow the user to quickly preview each sequence by placing the mouse pointer over the required sequence in the list.

Y. The Playback tab shall via the Sequence Explorer pane list thumbnail images representing recorded sequences from an individual camera or all cameras in a view. The Sequence Explorer shall be launched in a floating window.

1. The floating window shall allow changing between motion, time and event/alert thumbnails.

2. The floating window shall have controls for moving forward and backwards in time.

3. When clicking one of the various thumbnails, a preview video of the recorded video shall be displayed.

Z. The Playback tab shall via an Alerts pane view a list of detected alerts. The listed alerts shall be clickable and when selected the time where the alert occurred shall be displayed.

AA. The Playback tab shall via a Time Navigation pane allow video sequences for the displayed cameras to be reviewed simultaneously.

1. The window shall provide controls for:

a. First/last image

b. Next/previous sequence

c. Next/previous image for selected camera

d. Playback forward/reverse

e. Playback speed

f. Skip gaps during playback

g. Search by time/date

BB. The Playback tab shall via an Audio pane allow the user to listen to recorded audio when playing back recorded video on the Client Viewer's Playback tab. When selecting playback of a camera its associated microphone (or speaker) shall automatically be selected in the Audio pane.

CC. The Playback tab shall via a Smart Search pane allow an area of interest in an image to be searched for motion by time. Search parameters shall include sensitivity and interval. A grid feature shall allow only specific regions of interest to be searched.

DD. The Playback tab shall via a Print pane allow a surveillance report to be printed from the image with specific information including camera name, capture time, print time, the user and user notes. The surveillance report shall be printed to any network connected printer.

EE. The Playback tab shall via an Export pane allow the user to specify the time i.e. the beginning and end time where the export is covered. It shall be possible to select the camera source to export from and provide two format options for exporting video clips.

1. AVI/JPEG format – Provides options for export format type (AVI/JPEG), timestamp, frame rate (full/half), digital zoom export, and AVI CODEC. Video clip may be exported to desktop, or a specific file path. All audio associated with the video being exported shall automatically be included in the AVI export.

2. Database Export – Provides options for including audio, security options including compressing and/or encrypting exported database and destination options including desktop, or a specific file path. Includes option for a viewer to be attached to the exported file.

FF. The Playback tab shall via a PTZ control pane allow the digital zoom feature to be used in recordings.

GG. The Playback tab shall contain a timeline browser displaying a time line for each camera to represent recorded video sequences. The sequences shall be color coded to indicate motion activated sequences. E.g. a red band indicates video recorded due to motion activation, or a green band indicates video recorded without motion or pre and post alarm video. The time line band shall be highlighted based on the camera view selected in the display.

HH. The Playback tab shall allow selecting non-synchronized playback for one, or more cameras.

1. The individual non-synchronized playback from the camera(s) shall be controlled via overlay buttons appearing on the camera image.

II. The Playback tab shall allow the possibility to force the cameras back to synchronized playback mode again.

Setup

JJ. The Setup tab Views pane shall allow the user to create new groups and to create new views. It shall also allow the user to rename, or delete existing groups and views.

KK. The Setup tab System Overview pane shall allow view layouts to be set-up with cameras, carousel, hotspot, HTML pages, static images, maps and Matrix content. The Setup tab Properties pane shall allow e.g. camera properties to be set including; image quality, and frame rate. The Setup tab shall have a configuration setting allowing for the HTML page toolbar to be hidden while viewing HTML pages.

LL. The Setup tab Overlay Buttons pane shall allow adding unlimited numbers of overlay buttons to each camera position.

The overlay buttons shall be assigned to the cameras with the different actions, outputs, events, PTZs etc.

1. Overlay buttons shall be scalable in size.

2. Overlay buttons shall be added to the camera by dragging the action, event, output etc. from a pane to the position on a camera image.

3. Overlay buttons shall snap to a grid for easy alignment.

4. The text on the overlay button shall by default be the name of the action, or event.

5. The text on the overlay buttons shall be editable.

MM. The Properties pane in the Setup tab shall depending on the selected item, contain settings that allow the user to configure this specific item. Examples on settings:

1. Image Quality – shall include Full, Super High (for Megapixel cameras), High, Medium and Low.

2. Keep Image Quality When Maximized – Upon maximizing a specific camera image in a full view window pane, the user shall have the option to:

   a. Use the selected Image Quality set for the specified camera,

      or

   b. Use the maximum Image Quality available from the camera device regardless of the Image Quality set for the device in the system.

3. Frame Rate – shall include Unlimited, Medium and Low.

4. Maintains Image Aspect Ratio – shall allow original image aspect ratio to be maintained in the display, or allow the image to be scaled to the display.

5. Update Image on Motion – shall allow bandwidth from the Recording Server to be conserved by only updating the image display on motion.

6. Sound on Motion Detection – shall allow an audible alert to be generated when motion is sensed in the camera image to alert users.

7. Sound on Event – shall allow an audible alert to be generated upon an event to alert users.

8. Display settings – shall allow the use of default settings defined in the Options dialog. It shall also be possible to enable a display a title bar function located in the top of each camera position for quickly identification of the camera. Furthermore, it shall be possible to enable a show a live indicator that blinks green in the title bar every time a new image is received from the camera – an effect that makes it easy to see that video is alive.

9. Live Video Buffering – shall allow the possibility of building up a buffer used together with MPEG4 and H.264 cameras giving a very smooth display of live video from these cameras.

Map functions

NN. Build-in map function in the Client Viewer shall provide intuitive overview of the system and offer integrated access to all system components.

OO. Map function can use standard graphical file formats including jpg, gif, png, tif, etc.

PP. Any number of layered maps can be used and allow for easy drag-and-drop and point-and-click definition of cameras, servers, microphones, speakers, I/O devices, hot-zones, and PTZ camera presets.

QQ. Hot zones allow for intuitive navigation between different map levels.

RR. Instant camera preview on "mouse over".

SS. Integrated control of speakers, microphones, events, and I/O.

TT. Real-time status monitoring indication from all system components.

UU. Graphical at-the-glance visualization of the system status through color coding.

VV. Hierarchical propagation of status indication to higher order maps.

WW. Different level status indication for warnings and errors.

XX. System performance data for cameras and servers including camera resolution, FPS, network usage, disk space, etc.

Remote Client Viewer

YY. The web-based Remote Client Viewer shall offer live view of up to 16 cameras, including PTZ control with joystick, fisheye (360 degrees) cameras and event/output activation. The Playback function shall give the user concurrent playback of up to 16 recorded videos with date, alert sequence, or time searching.

ZZ. The web-based Remote Client Viewer shall offer quick overviews of sequences with detected motion.

AAA. The web-based Remote Client Viewer shall be able to generate and export evidence in AVI (movie clip) and JPG (still image) formats.

BBB. The web-based Remote Client Viewer shall be able to print images.

CCC. The web-based Remote Client Viewer shall have the ability to adjust the display parameters of the video images, i.e. down speed the frames per second, or down sample the resolution from the Recording Server to optimize bandwidth utilization.

DDD. View Support – The Remote Client Viewer shall support shared and private server-based views with a layout of up to 4x4. Any of these views shall have the ability to contain a combination of cameras, images, and HTML page view items.

EEE. Microsoft Active Directory Support – The Remote Client Viewer shall support logon using Microsoft Domain Controllers and the local Windows user account database on the Management Server.

FFF. The Remote Client Viewer shall support the following languages American English, Simplified Chinese, German, Danish, Spanish, French, Italian, Japanese and Swedish.

GGG. The Remote Client Viewer User's Manual shall be available in American English and Simplified Chinese.

Digital Video Recorders and Analog Recording Devices

The Recording Servers shall be used for recording video feeds and for communicating with cameras and other devices. The Recording Server(s) shall communicate the Management Server.

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation.

Recording Server

HHH. The Recording Servers, once configured, shall run independently of the Management Server, and continue to operate in the event that the Management Server is offline.

III. The system shall support an unlimited number of Recording Servers. One or more Recording Servers may be used in a system depending on the number of cameras, or physical system configuration.

JJJ. The system shall support the use of separate networks, VLANs, or switches for connecting the cameras to the Recording Servers to provide physical network separation from the clients, and facilitate the use of static IP addresses for the devices.

KKK. The system shall support H.264, MPEG-4 (Part 2), MPEG-4 ASP, MxPEG, and MJPEG compression formats for all analog cameras connected to encoders, and all IP cameras connected to the system.

LLL. The system shall support the MxPEG video compression algorithm, which is unique to Mobotix. MxPEG encoding shall have the capability to maintain high image quality for megapixel cameras while dramatically decreasing bandwidth consumption.

MMM. The system shall support dual-streaming cameras covering compression formats H.264, MPEG-4 (Part 2) and MJPEG.

NNN. The system shall record the native frame rate and resolution (NTSC or PAL) supplied by the camera, or as configured by the operator from the System Manager.

OOO. Each Recording Server shall have a default storage area. A storage area is a directory where the database content, primarily recordings from the connected cameras is stored. Recordings from the connected cameras shall be stored in individual camera databases. The system shall allow an unlimited amount of storage to be allocated for each connected device.

PPP. The system shall allow archiving to be enabled on a per camera basis and allow the user to define which archiving drive shall be used for each camera.

QQQ. The Recording Server shall utilize high performance ISCSI and SCSI disk drives for online recording storage and shall allow the use of lower cost SATA drives for the RAID arrays for online

archive storage. Use of online archiving shall ensure that data is always readily available. Use of tape-backup systems shall not be acceptable.

RRR. The online archiving capability shall be transparent and allow Client Viewer users to Playback archive recordings without the need to restore the archive video to a local hard drive for access.

SSS. The system shall allow for the frame rate, bit rate and resolution of each camera to be configured independently for recording. The system shall allow the user to configure groups of cameras with the same frame rate, bit rate and resolution for efficient set-up of multiple cameras simultaneously.

TTT. The system shall support Archiving i.e. automatic transfer of recordings from a camera's default database to another location on a time-programmable basis without the need for user action, or initiation of the archiving process. Archiving shall allow the duration of the camera's recordings to exceed the camera's default database capacity. Archives shall be located on either the Recording Server computer, or on a connected network drive. If the storage area on a network drive becomes unavailable for recording, the system shall have the ability to trigger actions, such as the automatic sending of email alerts to necessary personnel.

UUU. The Recording Server(s) shall have the ability to support multiple Network Interface Cards (NIC) and support connection to the cameras on a network separate from the Client Viewer, Management Server and System Manager.

VVV. The Recording Server shall have the ability to accept the full frame rate supplied by the cameras, while recording a lower frame rate yet still make the higher frame rate available to the Clients for live viewing.

WWW. The Recording Server shall support static assigned IP addresses, or shall obtain IP addresses from a DNS/DHCP server or hostname.

XXX. The Recording Server shall run as a service and shall typically be installed on dedicated computer(s), separate from the Management Server, on the network.

YYY. The operational status for the Recording Server shall be displayed in the system tray. Icons in the system tray shall indicate the status;

1. Recording Server is running

2. Recording Server is stopped

3. Recording Server is starting

4. Recording Server is stopping

5. Recording Server is running offline

6. Recording Server must be authorized by administrator

ZZZ. The Recording Server shall maintain a continuous log of server status messages accessed from the status Icon in the system tray.

AAAA. Bandwidth Management

1. The Recording Server shall offer the following options for managing the bandwidth utilization for live viewing on the Client Viewer.

a. For JPEG images from the camera/encoder, the output options shall be:

1) Native = Same frame rate/resolution received from camera/encoder

2) JPEG transcoding:

a) Resolution

(1) Super High = 1 M (Megapixels)

(2) High = 4CIF (704x576, or VGA (640x480)

(3) Medium = CIF (352x288, or 320x240)

(4) Low = QCIF (176x144)

b) Frame Rate

(1) Unlimited = Same frame rate received from camera/encoder

(2) Medium = 1/4 Native frame rate

(3) Low = 1/20 Native frame rate

2. For MPEG-4 images from the camera/encoder the options shall be:

   a. Native = Same MPEG-4 resolution and frame rate received from camera.

   b. JPEG transcoding:

      1) Resolution

         a) Super High = 1 M (Megapixels)

         b) High = 4CIF (704x576, or VGA (640x480)

         c) Medium = CIF (352x288, or 320x240)

         d) Low = QCIF (176x144)

      2) Frame Rate

         a) Unlimited = Same frame rate received from camera/encoder

         b) Medium = I Frames only

         c) Low = I Frames only

3. For H.264 images from the camera/encoder the options shall be:

   a. Native = Same H.264 resolution and frame rate received from camera.

   b. JPEG transcoding:

      1) Resolution

         a) Super High = 1 M (Megapixels)

         b) High = 4CIF (704x576, or VGA (640x480)

         c) Medium = CIF (352x288, or 320x240)

         d) Low = QCIF (176x144)

      2) Frame Rate

         a) Unlimited = Same frame rate received from camera/encoder

b) Medium = I Frames only

c) Low = I Frames only

4. The Recording Server shall support the PTZ protocols of the supported devices.

Systems Infrastructure

The system shall allow the use of computer, servers, storage and switches from any manufacturer with components that meet the minimum requirements.

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation. It is highly recommended that specifications for each component of the Video Management System are calculated for each application to ensure product performance.

Product system requirements

Management Server

The following are the minimum requirements for the computers running the Management Server application.

BBBB. CPU – Minimum 2.4 GHz, or higher.

CCCC. RAM – Minimum of 1 GB (2 GB, or more recommended).

DDDD. Network – Ethernet (1 GB recommended).

EEEE. Graphics Adapter – PCI, AGP, PCI-Express, minimum 1024x768, 16 bit color.

FFFF. Hard Disk Type – E-IDE, PATA, SATA, SCSI, SAS (7200 RPM, or faster).

GGGG. Hard Disk Space – Minimum 1 GB disk space available, excluding space needed to SQL database and system configurations with logging data (depends on number of cameras and recording settings).

HHHH. Operating System – Windows Server 2003 (32 bit, or 64 bit), or Windows Server 2008 R1 and R2 (32 bit and 64 bit).

IIII. Software – Microsoft .NET 3.5 Framework SP1, or newer. Internet Information Services (IIS) 6.0, or newer. Microsoft SQL 2005/2008 Server, or Microsoft SQL Express 2005/2008 (if less than 500 devices in the installation).

JJJJ.

Recording Server/ Failover Server

The following are the minimum requirements for the computers running the Recording Server application.

KKKK. CPU – Minimum 2.4 GHz, or higher.

LLLL. RAM – Minimum of 1 GB (2 GB, or more recommended).

MMMM. Network – Ethernet (1 GB recommended).

NNNN. Graphics Adapter – PCI, AGP, PCI-Express, minimum 1024x768, 16 bit color.

OOOO. Hard Disk Type – E-IDE, PATA, SATA, SCSI, SAS (7200 RPM, or faster).

PPPP. Hard Disk Space – Minimum 1 GB disk space available, excluding space needed to SQL database and system configurations with logging data (depends on number of cameras and recording settings).

QQQQ. Operating System – Windows 7 Ultimate (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Professional (32 bit, or 64 bit* running as a 32 bit application), Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2008 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Enterprise 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business 32 bit, or 64 bit* running as a 32 bit application).

RRRR. Software – Microsoft .NET 3.5 Framework SP1, or newer.

SSSS.

System Manager

The following are the minimum requirements for the computers running the System Manager application.

TTTT. CPU – Intel 2.4 GHz, or higher.

UUUU. RAM – Minimum of 1 GB (2 GB, or higher recommended on Microsoft Windows Vista).

VVVV. Network – Ethernet (100 Mbit, or higher recommended).

WWWW. Graphics Adapter – AGP, PCI-Express, minimum 1024x768, (1280 X1024 recommended), 16 bit color.

XXXX. Hard Disk Type – E-IDE, PATA, SATA, SCSI, SAS (7200 RPM, or faster).

YYYY. Hard Disk Space – Minimum 100 MB free.

ZZZZ. Operating System – Windows 7 Ultimate (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Professional (32 bit, or 64 bit* running as a 32 bit application), Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2008 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Enterprise 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business 32 bit, or 64 bit* running as a 32 bit application).

AAAAA. Software – Microsoft .NET 3.5 Framework SP1, or newer. DirectX 9.0, or newer.

Client Viewer

The following are the minimum requirements for the computers running the Client Viewer application.

BBBBB. CPU – Intel 2.4 GHz, or higher (more powerful CPU recommended for Client Viewer and Video Wall Modules running higher numbers of cameras and multiple views and displays).

CCCCC. RAM – Minimum of 1 GB (higher RAM recommended for Client Viewer and Video Wall Modules running higher numbers of cameras and multiple views and displays).

DDDDD. Network – Ethernet (100 Mbit, or higher recommended).

EEEEE. Graphics Adapter - AGP, PCI-Express, minimum 1024x768, (1280x1024 recommended), 16 bit colors.

FFFFF. Hard Disk Type – E-IDE, PATA, SATA, SCSI, SAS (7200 RPM, or faster).

GGGGG. Hard Disk Space – Minimum 100 MB free.

HHHHH. Operating System – Windows 7 Ultimate (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Professional (32 bit, or 64 bit* running as a 32 bit application), Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2008 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Enterprise 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business 32 bit, or 64 bit* running as a 32 bit application).

IIIII. Software – Microsoft .NET 3.5 Framework SP 1, or newer. DirectX 9.0, or newer.

Remote Client Viewer

The following are the minimum requirements for the computers running the Remote Client Viewer application.

JJJJJ. CPU – Intel 2.4 GHz, or higher (more powerful CPU recommended for Client Viewer and Video Wall Modules running higher numbers of cameras and multiple views and displays).

KKKKK. RAM – Minimum of 1 GB (higher RAM recommended for Client Viewer and Video Wall Modules running higher numbers of cameras and multiple views and displays and running Microsoft Windows Vista).

LLLLL. Network – Ethernet (100 Mbit, or higher recommended).

MMMMM. Graphics Adapter - AGP, PCI-Express, minimum 1024x768, (1280x1024 recommended), 16 bit colors.

NNNNN. Hard Disk Type – E-IDE, PATA, SATA, SCSI, SAS (7200 RPM, or faster).

OOOOO. Hard Disk Space – Minimum 10 MB free.

PPPPP. Operating System – Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2008 R1/R2 (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business 32 bit, or 64 bit* running as a 32 bit

application), Windows Vista Enterprise 32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate 32 bit, or 64 bit* running as a 32 bit application)), Windows 7 Professional (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows 7 Ultimate (32 bit, or 64 bit* running as a 32 bit application).

QQQQQ. Software – Microsoft Internet Explorer 7.0 or newer (32 bit version) required. DirectX 9.0, or newer.

Graphical Alarm Management Module (server side)

The following are the minimum requirements for the servers running the Graphical Alarm Management Module application.

RRRRR. CPU – Intel P4 2.4 GHz, or higher.

SSSSS. RAM – Minimum of 512 MB (1 GB recommended).

TTTTT. Network – Ethernet (100 Mbit, or higher recommended).

UUUUU. Graphics Card – Any supported by Microsoft Windows.

VVVVV. Hard Disk Type – Any supported by Microsoft Windows.

WWWWW. Hard Disk Space – Minimum 100 MB available (depending on number of servers and alarm settings).

XXXXX. Operating System – Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate (32 bit, or 64 bit* running as a 32 bit application).

YYYYY. Software – Windows .Net 2.0 Framework, or newer. Internet Information Services (IIS) 5.1 or newer required.

Graphical Alarm Management Module (client side)

The following are the minimum requirements for the clients running the Graphical Alarm Management Module application.

ZZZZZ. CPU – Intel P4 2.4 GHz, or higher.

AAAAAA. RAM – Minimum of 512 MB (1 GB recommended).

BBBBBB. Network – Ethernet (100 Mbit, or higher recommended).

CCCCCC. Graphics Card – AGP, PCI-Express, minimum 1024x768 (1280x1024 recommended), 16 bit colors.

DDDDDD. Hard Disk Space – Minimum 50 MB free.

EEEEEE. Operating System – Windows XP Professional (32 bit, or 64 bit* running as a 32 bit application), Windows Server 2003 (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Business (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Enterprise (32 bit, or 64 bit* running as a 32 bit application), Windows Vista Ultimate (32 bit, or 64 bit* running as a 32 bit application).

FFFFFF. Software – Microsoft .Net 2.0 Framework, or newer, DirectX 9.0, or newer required.

Transactional Data Module (server side)

The following are the minimum requirements for the servers running the Transactional Data Integration Module application.

GGGGGG. CPU – Intel P4 2.4 GHz, or higher.

HHHHHH. RAM – Minimum of 512 MB, or higher.

IIIIII. Network – Ethernet (100 Mbit, or higher recommended).

JJJJJJ. Operating System – Windows XP Professional, Windows Server 2003, or Windows Vista.

KKKKKK. Software – .Net 3.0 Framework required.

Transactional Data Module (client side)

The following are the minimum requirements for the clients running the Transactional Data Integration Module application.

LLLLLL. CPU – Intel P4 2.4GHz, or higher.

MMMMMM. RAM – Minimum of 512 MB, or higher.

NNNNNN. Network – Ethernet (100 Mbit, or higher recommended).

OOOOOO. Graphics Card – AGP, PCI-Express, minimum 1024x768.

PPPPPP. Operating System – Windows XP Professional, Windows Server 2003, or Windows Vista.

QQQQQQ. Software – .Net 3.0 Framework required.

Video Content Analysis Framework Module (server side)

The following are the minimum requirements for the servers running the video content analysis framework module application.

RRRRRR. CPU – Intel P4 2.4GHz, or higher.

SSSSSS. RAM – Minimum 2 GB.

TTTTTT. Network – Ethernet 100 Mbit, or higher recommended.

UUUUUU. Operating System – Windows XP Professional, Windows Server 2003, Windows Server 2008, Vista Business (32 bit and 64 bit*), Vista Enterprise (32 bit and 64 bit*), Vista Ultimate (32 bit and 64 bit*).*Running as a 32 bit application.

VVVVVV. Software – .Net 3.0 Framework required.

Video Content Analysis Framework Module (client side)

The following are the minimum requirements for the clients running the video content analysis framework module application.

WWWWWW. CPU – Intel Core2 Duo 2.0 GHz, or higher (Quad Core recommended for larger views).

XXXXXX. RAM – Minimum of 512 MB (1 GB recommended for larger views, 1 GB recommended on Microsoft Windows Vista).

YYYYYY. Network – Ethernet 100 Mbit, or higher recommended.

ZZZZZZ. Graphics Card – AGP, or PCI-Express, minimum 1024x768 (1280x1024 recommend), 16 bit colors.

AAAAAAA. Hard disk space – Minimum 100 MB available.

BBBBBBB. Operating System – Windows XP Pro, Windows Server 2003, Windows Server 2008, Vista Business (32 bit and 64 bit*), Vista Enterprise (32 bit and 64 bit*), Vista Ultimate (32 bit and 64 bit*).*Running as a 32 bit application.

CCCCCCC. Software – .Net Framework 2.0, or newer. DirectX 9.0 or newer required.

Remote Devices and Sensors

The Video Management System shall support a large number of IP camera and video encoder vendor models ensuring flexibility in the applications.

NOTE:

The Video Management System shall be installed by a certified technician in accordance with all vendor specified installation documentation.

Supported devices

The supported camera and encoder model numbers shall be listed for each manufacturer on an up-to-date web site.

DDDDDDD. The Video Management System shall as a minimum support devices from the following manufacturers:

1. 360 Vision
2. ACTI
3. Advantech
4. Apro Technology
5. Arecont
6. Axis
7. Barix
8. Basler
9. Bosch
10. Canon
11. Checkview
12. Cisco
13. Darim Vision
14. DvTel
15. Dynacolor

16. GE Security
17. Honeywell
18. iCanTek
19. IPIX
20. IQinVision
21. Johnson Control
22. JVC
23. Lenel
24. Linudix
25. Messoa
26. Mobotix
27. Panasonic
28. Pelco
29. Provideo
30. Samsung
31. Samsung Techwin
32. Sanyo
33. Siemens
34. Siqura/Optelecom-nkf
35. Sony
36. Toshiba
37. UDP Technology
38. Vantage
39. Verint
40. VideoIQ
41. Vivotek
42. Weldex

EEEEEEE. The Video Management System shall support future camera and encoders models as support becomes available without having to reconfigure the system.

Exhibit A1

HURON CITY MICROWAVE NETWORK

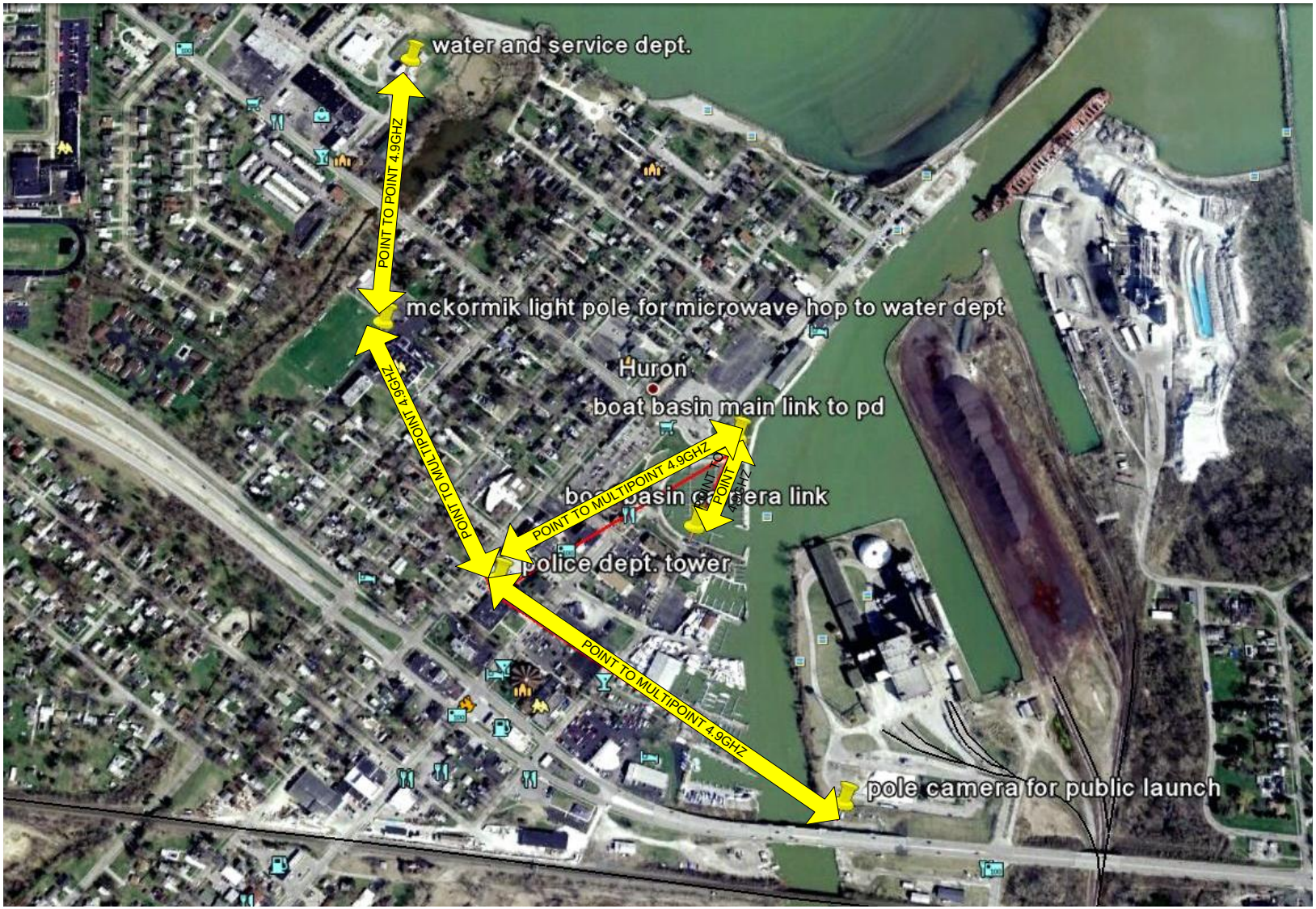

water and service dept.
POINT TO POINT 4.9GHZ
mckormik light pole for microwave hop to water dept
Huron
boat basin main link to pd
POINT TO MULTIPOINT 4.9GHZ
POINT TO MULTIPOINT 4.9GHZ
police dept. tower
POINT TO MULTIPOINT 4.9GHZ
pole camera for public launch

Exhibit B 1

EXHIBIT B

HURON POLICE CCTV

NEW DOME CAMERAS

EXISTING CAMERAS

C EXISTING CAMERAS

3M

CAMERAS WILL BE REPLACED

C

3M

FIRE DEPT

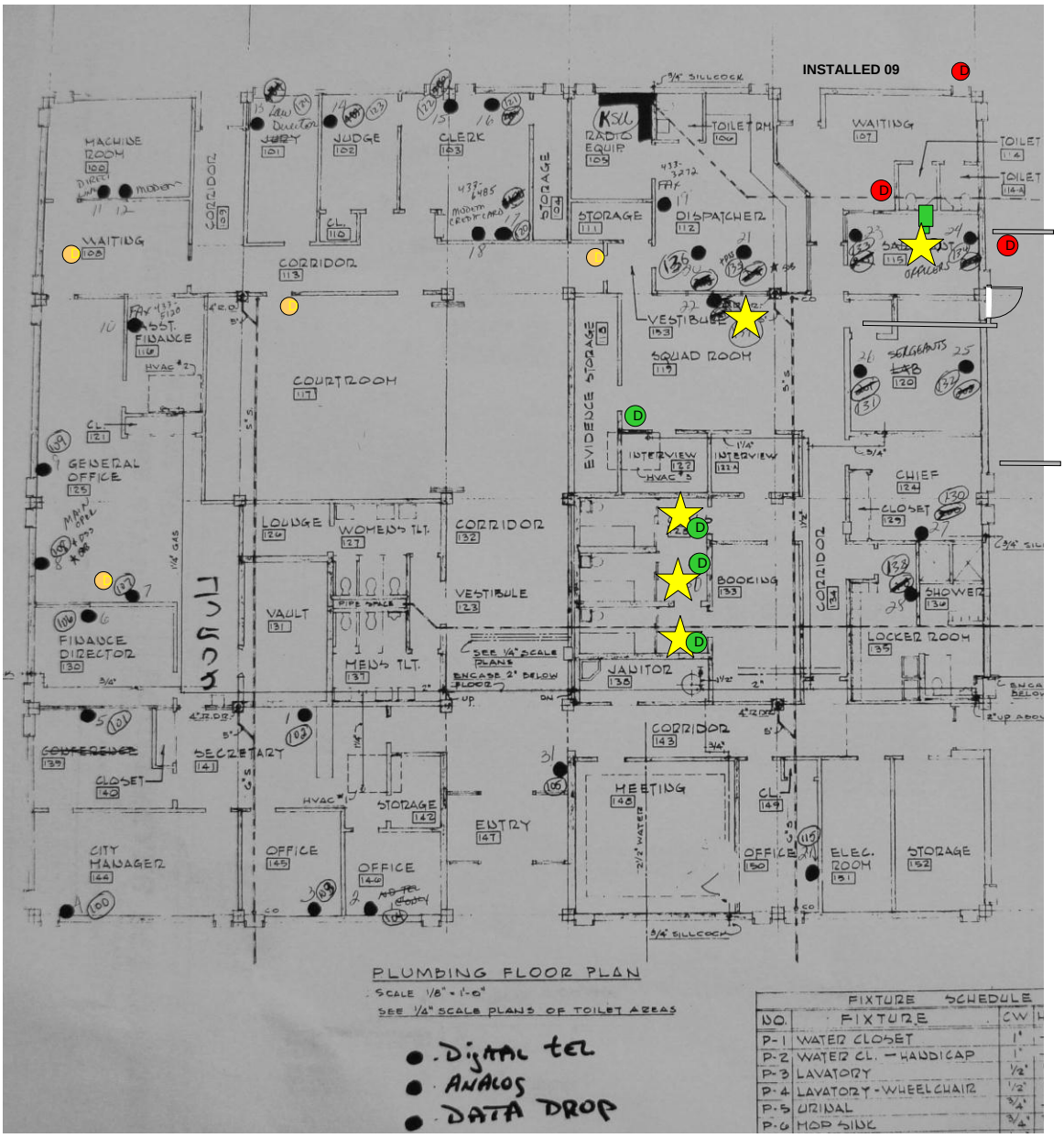
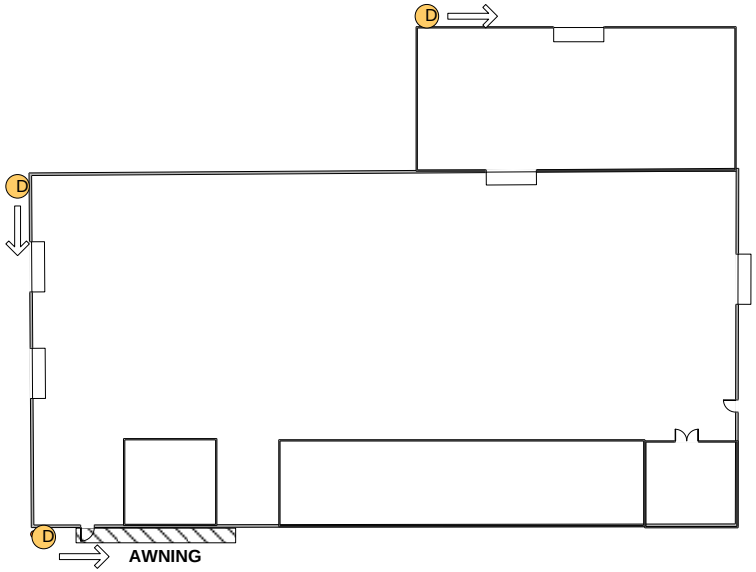


Exhibit C1

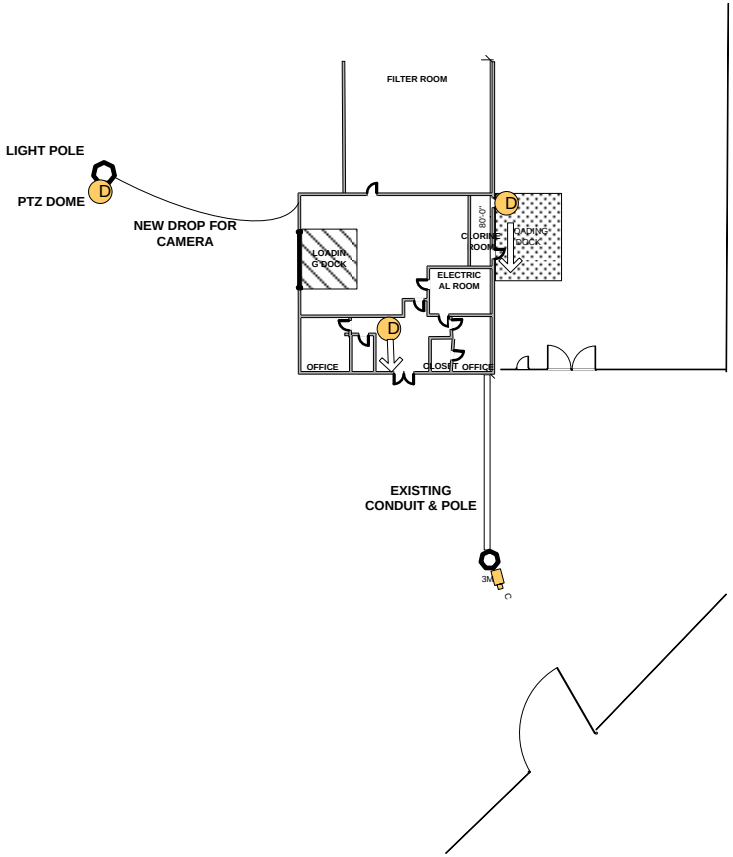
NEW VANDAL RESISTANT DOME CAMERAS

NEW BOX CAMERAS

HURON SERVICE GARAGE



HURON WATER TREATMENT PLANT



DOME CAMERA SPECS

Image Device 410K SUPER-HAD CCD (NTSC)
Size 1/3”
Pixels Effective : NTSC : 768(H) x 494(V)
Min. Scene Illumination Color 0.0005 Lux @15IRE, Sens-Up x256
0.4 Lux @ 50IRE, Sens-Up x256
B/W 0.00005 Lux @15IRE, Sens-Up x256
0.04 Lux @ 50IRE, Sens-Up x256
Functions Day/Night Yes (Moving Filter)
Anti Vandal
Sens Up (LSS) Off, AUTO x128
Motion Detection High, Medium, Low
Ingress Protection IP66
Sync Mode Internal
Camera Resolution Horizontal Equivalent to 540TV Lines (Color) : 570TV Lines (B/W)
Video Output VBS 1.0Vp-p (75 Ohm, Composite)
Lens Vari-focal Lens
Focal Length 2.9 ~ 10mm
OS Environment Network Board OS Embedded Linux
Client OS Windows 2000, XP, VISTA
Supported Open VMS Platforms AutoIP™ Milestone, OnSSI,and Verint
Web Browser Internet explorer 6.0 higher
Compression MPEG4, MJPEG G.711 Audio and Video Codec
Network Hardware Flash Memory 16M byte
SDRAM 128M byte
Ethernet 10/100BASE-T
Network Protocol TCP,UDP, TRSP, NTP, HTTP, DHCP, PPoE
Streaming TCP,UDP (Unicast, Multicast)
DDNS Supporting Samsung DDNS and Public DDNS servers
Video Resolution NTSC D1
Frame Rate NTSC 30, 15, 7.5, 1 FPS
Alarm Event Image transfer FTP, E-mail Notification: notify to viewer, SD card record
IP Installer IP installation function (XP, win 2000, VISTA support)
Software Upgrade Firmware, upgrade by web browser
Access Level Login access Level Administrator, Operator, User
IP Notification SMTP(E-mail), FTP
Time Setting NTP Time Sync, Time Zone, Day light Saving Setup
Video Quality Very High, High, Normal, Low, Very Low
Environmental Conditions Operating Temperature 14º F ~ 122º F (-10˚C ~ +50˚C)
Humidity 20% ~ 85 %
Power Requirement AC24V(60Hz), DC12V, PoE

BOX CAMERA SPEC

Camera Type	Color
Device	Super HAD PS CCD
Size	1/3"
Scan	Progressive Scan
Pixels Total	NTSC : 811 x 508 / PAL : 795 x 596
Effective	NTSC : 768 x 494 / PAL : 752 x 582
Color Sens Off	0.12Lux (15 IRE) / 0.2Lux (30 IRE) / 0.4Lux 50 IRE
Min. Scene Sens-up 512x	0.00023Lux (15 IRE) / 0.0005Lux (30 IRE) / 0.0008Lux (50 IRE
Illumination B/W Sens Off0	.12Lux (15 IRE) / 0.2Lux (30 IRE) / 0.4Lux (50 IRE
Sens-up 512x	0.00023Lux (15 IRE) / 0.0005Lux (30 IRE) / 0.0008Lux(50 IRE
Number of Privacy Zone	12ea (Polygonal method
Day and Night	Color / B/W / Auto (Soft method
extended Dynamic Range(XDR)	On / Off (Level setting)
Digital Zoom	1x ~ 16x (0.1x step)
PIP	On / Off
Electronic Shutter Speed	NTSC : 1/60 ~ 1/10Ksec / PAL : 1/50 ~ 1/10Ksec
Functions Sens-up (Frame Integration)	2x ~ 512x
Backlight Compensation	On / Off (Area setting)
White Balance	ATW1 / ATW2 / AWC / 3200K° / 5600K°
Digital Noise Reduction	On / Off (Adaptive 3D + 2D)
Digital Image Stablization	On / Off
Camera ID	On / Off (Max. 54ea / 2 line)
Etc. Function	Detail, Reverse (H/V), Posi/Nega
Resolution Horizontal / Vertical	600TV lines / 350TV lines
Video Output	VBS 1.0Vp-p
S/N Ratio	52dB
Lens Lens Drive Type	DC)
Mount Type	CS / C
Environmental Operating Temperature-	10°C ~ +50°C (+14°F ~ +122°F)
Conditions Operating Humidity	0% ~ 90% RH
Power Requirement	Dual (12V DC / 24V AC), PoE
Power Consumption	Max. 7W

MICROWAVE EQUIPMENT

Standards	IEEE 802.11a
Frequency Range	4940 – 4990 MHz (1)
Channel Bandwidths	5MHz, 10MHz, 20 MHz Selectable
Radio Modes	Access Point (AP), Point-to-Point (PxP), Customer Premise Equipment (CPE)
Transmit Power	+13 dBm (max) with Adjustable Output
Receiver Sensitivity	-65 dBm @ 54 Mbps
Data Rate and Modulation	48/54 Mbps QAM-64, 24/36 Mbps QAM-16, 12/18 Mbps QPSK, 6/9 Mbps BPSK
Receive Signal Strength	Noise and Receive Signal Levels (dBm) and Daylight Visible Alignment LED's
Antenna Polarization	Horizontal or Vertical **Horizontal** **Vertical**
Device Management	Cross-Platform Utility, Web-Based Management, Remote Configuration and Firmware Upgrades (via IP), TFTP, SNMP v2c (MIB-II, 802.11 MIB, Tranzeo MIB), Import/Export/Save Settings Profiles
Protocols	TCP/IP, UDP, NAT, DHCP Client/Server, PPPoE, WDS, VPN Pass-Through, Multiple MAC Bridging
Quality of Service (QoS)	StreamEngineTM QoS
Bandwidth Management	Bandwidth Throttling (Bridge and Router Modes)
Security	40/64-bit and 128-bit WEP Encryption, WPA/WPA2 (TKIP/AES/Enterprise), MAC address filtering
Ethernet	2 x 10/100Base-T (Water-Tight RJ-45) (3)
Max DHCP Clients	255
Power Supply	
Power Requirement	5.5 Watts (max)
Power Supply	Power over Ethernet (PoE)
DC Adapter	18VDC/1.1A (INPUT: 120-240VAC~ 50-60Hz, 0.6A) **f**-Model: Fixed UL Plug (US only) **W**-Model: Snap-In Plugs for US, UK, and EU included
Environmental Rating	IP67 and NEMA Type 4X
Operating Temperature	-65°C to +60°C
Storage Temperature	-40°C to +85°C

Server Specifications

1U Rack mount Server. 1 Xeon Dual Core E5502 1.86 GHZ CPU with 4MB Level 3 cache. 4GB Ram, Qty. (4) Hot Swap 500GB Hard Drives setup for RAID 5 with a hot spare. Slim-line DVD ROM, Integrated Matrox MGA G200e 8MB video, 2 x Gigabit Ethernet. Redundant power supplies. Windows Server 2008 with 5 CAL's. 19 in ASUS LCD Monitor, USB Keyboard and Optical Mouse.

Switch Specifications

Specifications	
Ports	• 8 RJ-45 connectors for 10BASE-T/100BASE-TX/1000BASE-T • Auto medium dependent interface (MDI) and MDI crossover (MDI-X) • Auto negotiate/manual setting
Buttons	Reset
Cabling type	Unshielded twisted pair (UTP) Category 5 or better for 10BASE-T/100BASE-TX, UTP Category 5e or better for 1000BASE-T
LEDs	Link/Act, System
PoE	
• 802.3af PoE-PD compatible on port 1 • Supply system power without an external power adapter	
Performance	
Switching capacity	16 Gbps, nonblocking
Forwarding rate	11.9 Mpps wire-speed performance
Layer 2	
MAC table size	8000
Number of VLANs	16 active VLANs (4096 range)
VLAN	Port-based and 802.1Q tag-based VLANs
Head-of-line (HOL) blocking	HOL blocking prevention
Management	
Web user interface	Built-in web UI for easy browser-based configuration

Firmware upgrade	Web browser upgrade (HTTP)
Port mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer
Other management	
• RADIUS • Port mirroring • Dynamic Host Configuration Protocol (DHCP) client • Ping	
Security	
IEEE 802.1x	802.1x - RADIUS authentication, MD5 encryption
Availability	
Link aggregation	• Link aggregation using IEEE 802.3ad LACP • Up to 8 ports in up to 2 groups
Storm control	Broadcast and multicast
Spanning Tree	IEEE 802.1D Spanning Tree
IGMP snooping	IGMP (v1/v2) snooping limits bandwidth-intensive video traffic to only the requestors Supports 16 multicast groups
QoS	
Priority levels	4 hardware queues
Scheduling	Priority queuing and weighted round-robin (WRR)
Class of service	• Port based • 802.1p VLAN priority based • IPv4/v6 IP DSCP based
Standards	
• 802.3 10BASE-T Ethernet, 802.3u 100BASE-TX Fast Ethernet • 802.3ab 1000BASE-T Gigabit Ethernet, 802.3z Gigabit Ethernet • 802.3x flow control, 802.3ad LACP, 802.3af PoE, 802.1D Spanning Tree Protocol • 802.1Q/p VLAN, 802.1X port access authentication	
Environmental	
Dimensions W x H x D	5.12 x 1.12 x 5.12 in. (130 x 28.5 x 130 mm)
Power	External AC power adapter and IEEE 802.3af compatible PoE-PD

Certification	FCC Part 15 Class B, CE Class A, UL, cUL, CE Mark, CB
Operating temperature	32° to 104°F (0° to 40°C)
Storage temperature	-4° to 158°F (-20° to 70°C)
Operating humidity	10% to 90%
Storage humidity	10% to 95%